THE

Merchant's Magazine:

OR,

Trades-man's Treasury.

CONTAINING

Vulgar Arithmetick in Whole Numbers, with the Reason and Demonstration of each Rule, adorn'd with curious Copper Cutts of the chief Tables and Titles: Also Vulgar and Decimal Fractions, after a New, Easie and Practical Method.

Merchants Accompts, or Rules of Practice; shewing how to cast up the Value of Merchandize, and to make Allowance for Tare and Trett, more compendiously than hath hitherto been made Publick; with Tables of Foreign Coin in Sterling, and a large Table for reducing the one to the other: Also foreign Weight and Measure compar'd with the English, and the Weight and Value of the Currant Gold of this Kingdom: Likewise, Rules of Barter, Loss and Gain, Rules of Fellowship, and Equating Time of Payment. Also how to find the Simple or Compound Interest of any Summ for any Time, and a Table of Simple Interest (for one Day or upward) at any Rate of Interest; usefull for those concerned in the Bank of England.

Book-keeping, after a Plain, Easie and Natural Method; shewing how to Enter, Post, Close, and Ballance any Accompt, *&c.* And

LASTLY,

Maxims to be observed in Drawing, and Accepting Bills of Exchange, Foreign, or Domestick, *&c.* With many other things throughout the Whole, not extant before.

Accommodated chiefly to the Practice of Merchants and Tradesmen: But is likewise usefull for Schools, Bankers, Diversion of Gentlemen, the Business of Mechanicks, Land-waiters, and other Officers of Their MAJESTY's Customs and Excise.

By *Edw. Hatton*, Gent.

LONDON,

Printed for, and Sold by *Chr. Coningsby*, at the *Golden Turk's-Head*, against St. *Dunstan's* Church in *Fleet-street*, 1695.

The Reader is desired to correct the following Mistakes of the Press, before he begins to peruse this Treatise.

PAge 18, Line 13, for [*like manner if in*] read, *like manner in.* P. 27 l. 15, for [*Units contained in* 42212, *but what is contained in the Products* 34600, 6920, *and* 692.] r. *Units contained in* 34600, 6920 *and* 692, *than in the Product* 42212. P. 33 l. 41, for [*remains* 15] r. *remains* 1. P. 52. l. 8, for [17) 6412] r. 6412. l. 23, for [6 *Quarter*] r. 6 *Farthings*. P. 64 l. 4, for [*parts of Unit*] r. *parts of a Unit*. P. 87 l. 27, for [$\frac{1}{14}$ *of* 46723] r. $\frac{1}{12}$ *of* 46723, *and* l. 28, for [$\frac{1}{12}$ *of* 47632] r. $\frac{1}{20}$ *of* 47632. P. 92 *l.* 23, for [*Example* 1.] r. *Example*. P. 107, next after [9 : 00 : 23 *Nett*] is omitted these words by the Press: [*or take* $\frac{1}{7}$ *of the Gross for answer, as by the Table of Aliquot Part, foregoing.*] P. 112. l. 11. for [22 : 00 : 00 :] r. 22 : 01 : 00. P. 125. l. 31. for [3000 *one years*] r. 30.00 *one years*. P. 126. l. 6. for [2.92 *l.*] r. 2.22. And l. 8. for [20.44 *l. Answer, or* 20 *l.* 8 *s.* 9 *d.* 2 *qr.*] r. 15.54 *l. Answer, or* 15 *l.* 10 *s.* 9 *d.* 2 *qr.*. P. 132. l. 10. for [700.7 = *Add* 7.] r. 700.7 *Add.* Fol. 1. of the Wast-Book, l. 28, 29, 30. for [: :] r. [:]. Fol. 2. of Ditto Book, for [*July* 9. 1694.] r. [*July* 9.] Fol. 3. l. 2. for [10. *Ditto.*] r. *July* 10. 1694. Fol. 2. of the Journal, l. 4. for [307:00:00.] r. 307:10:00. And in like manner, read the same Summ on Debtor side of Cash and Creditor side of Druggs in the Ledger. In the Accompt of Cash on Creditor side in the Ledger, for [2505 : 6 : 00.] r. 2505 : 16 : 00. and on Debtor and Creditor side of Ditto Accompt, for [3344 : 10] r. 3345. on the Debtor side of Druggs, and Creditor side of Profit and Loss, for [284.] r. 284 : 10 : 00. And the Total of Debtor and Creditor sides of Druggs, r. 982 : 10 : 00. And the Total of Debtor and Creditor sides of Profit and Loss, r. 1138 : 14 : 6. and the same in the Accompt of Stock. In Debtor side of Balance, for [*To Cash*, &c. 2505 : 06.] r. 2505 : 16. And on Creditor side, for 3927 : 14 : 06.] r. 3928 : 4 : 6. and the same in the Accompt of Stock. And on Debtor and Creditor side of the Balance summ, for [4067 : 14 : 06.] r. 4068 : 4 : 6. In the Transcript of the Balance, Fol. 170, for [*Imprimis*, &c. 2505 : 6.] r. *Imprimis*, &c. 2505 : 16.

TO

HENRY SPELMAN

OF

WICKMERE,

IN THE

County of *NORFOLK*, Esq;

Edward Hatton,

As an Acknowledgment of Sundry Favours, humbly Dedicateth this Treatise.

Licenſed,

Nov. 30.
1694.

Edw. Cooke.

TO THE
READER.

HAving for many Years past spent some leisure hours in the Study of Arithmetick, Geometry, &c. I was often solicited to write something Mathematical. But considering the many ingenious Tracts of that Subject already extant, together with the Censoriousness of the Age, I refused it; knowing that to write what others had done before, without making some improvements, would look like a Transcript, and not be agreeable to the End, which every Author ought to propose to himself. i. e. *To make some new Discoveries, and advance the Art he makes his Subject a Degree nearer Perfection: However being requested by the Bookseller to publish something of the Use of some Arithmetical Copper-Cutts which he had by him, I complied with his Desire, hoping I had acquired such a competent Knowledge in Arithmetick, as to offer several things I had not observed in Print before. I resolved also to make such Additions, as might render the Book of general Use to Men of Business, especially to young Merchants, for whom it was chiefly intended. And the Practice of Merchandize being of so great Consequence to a Nation; I have endeavoured so to handle Arithmetick (as a Foundation) and to apply that to Merchants Accompts, and both to Book-keeping, as might be most likely to accomplish those concerned in that honourable Employment; for it would signifie little for a young Merchant to understand Arithmetick without Merchants Accompts, and to know the latter without the former is impossible; and though he should assume a good Knowledge of both; yet if he is ignorant of the Art of Book-keeping, that alone will prove a great Deficiency. I have therefore in the following Treatise made all three as plain as can be desired, they being the Essentials on which the whole Theorick of a Merchant's Business is composed. As to the particular Parts of the Book: The Rules of Arithmetick will be of Universal use; the Rules of Practice for the Retailers, as well as Mer-*

Merchants; that part about Tare and Trett for Land-waiters; the Book-keeping part, and that of Bills of Exchange, and Coin, to Bankers; Decimal Arithmetick to Gaugers, and others concerned in Measuring; as Joiners, Carpenters, &c. *and the whole not onely for Merchants,* &c. *but for Schools, both for the ease of the Master, and improvement of the Scholar. Notwithstanding all which I doubt not, but the Work will be variously censured, and perhaps the most unkindly by those (so ungratefull is the present Age) who have most reason to be obliging; however I shall not (for my part) pretend to anticipate Answers to all those Cavils, which an envious Critick may raise. But to the impartial Reader shall say thus much, That I have taken all imaginable care to prevent Errors, and to explain those things most clearly, which others have either but transiently touch'd, or wholly omitted; and though it should prove after all, that some few Mistakes should be unluckily crept in; yet my Ignorance of any, will in some measure plead my Excuse, since (Divines say)* No Action is farther Criminal than the Will of the Agent is Concomitant; *and I am sure the Candid Reader will friendly look over small Faults, for the sake of what is Novel and Genuine. If what is here offered may be advantageous to the Publick, and thereby answer the End for which it was designed, I shall esteem it a plenary Satisfaction for all the Pains I have taken therein; my design in this Work, being chiefly thy proficiency in these usefull, but mysterious Arts, and that it may have that Effect, is the hearty wishes of*

E. Hatton.

To the Ingenious Authour.

BY Numbers pow'rfull, and harmonious Aid,
This ſtately Fabrick of the World was made.
The mighty Fiat *was no ſooner ſaid,*
But tunefull Numbers readily obey'd
And the rude Chaos, *Form, aud Beauty had.*
Since, to Mankind ſubſervient they become,
And ſuffer not that his wild Fancy rome,
But when it erring ſtrays, conduct it home.
By a long Series *found of mighty uſe,*
Humane Affairs, to method to reduce.
By theſe, (after long Hazard, Toil and Pains,
Th'adventrous Merchant counts his Loſs or Gains,
What is his Charge, and what that Charge maintains.
By theſe, each Art, and Science, is made known,
And their dark Myſteries, reveal'd and ſhown.
By theſe, we Wars and Sieges undertake,
Great Conqueſts gain, and brave Defences make.
By theſe, we ſadly count for a paſt Life,
Made up of Labour, Sorrow, Care and Strife.
By theſe, we compaſs Earth, and Seas about.
By theſe, all's done, and nothing done without.
Yet, we were in Traditions dull track got,
And this ſtill copy'd what a former wrote,
And talk'd thereof, as Parrots do by rote.
But you, to ſhow your Pity, and your Love,
Reaſon and Practice, make together move,
And a dull Age, as 'twere by Force improve.
Whilſt others, poorly coaſt along the Shoar,
By Reaſon's Compaſs, you have ventur'd o're,
And taught us foreign Truths, unknown before.
Go on, but know, great Danger you muſt run
Of Rocks call'd Criticks, *you may ſplit upon.*
I'll but this ſhort Deſcription of 'em mention,
They all things damn, for want of apprehenſion.
But (for their Int'reſt) let the Wiſe be kind,
By this they'll judge what ſtill remains behind,
In the Rich Treaſury of your wealthy Mind.

P. C.

Advertisement.

ALL Sorts of Mathematical Instruments in Silver, Brass, or Wood, are made and sold by John Worgan *under St.* Dunstan's *Church in* Fleet-street.

Where any Nobleman, Gentleman, or Merchant, may hear of fit Persons to collect Rents, or keep Books, or teach the Mathematicks.

Numeration

Teacheth to read or write any Number set downe or named

The Table

								1	Vnites	1									
							2	1	Tenns	1	2								
						3	2	1	Hundreds	1	2	3							
					4	3	2	1	Thousands	1	2	3	4						
				5	4	3	2	1	XThousands	1	2	3	4	5					
			6	5	4	3	2	1	CThousands	1	2	3	4	5	6				
		7	6	5	4	3	2	1	Millions	1	2	3	4	5	6	7			
	8	7	6	5	4	3	2	1	XMillions	1	2	3	4	5	6	7	8		
9	8	7	6	5	4	3	2	1	CMillions	1	2	3	4	5	6	7	8	9	

NOTATION
OF
Whole NUMBERS.

IN Order to the Right understanding how any Number is to be read or written, there are these 4 things to be considered:

1. The Characters by which all Numbers are expressed.
2. The Species or Kinds of Numbers.
3. The Order or Place: And,
4. The Multitude or Value signified by any Number.

First, The Characters by which all Numbers are expressed in Writing are these Ten; *Viz.* 1, 2, 3, 4, 5, 6, 7, 8, 9, and (0) Cypher, by which, all Numbers, how great soever, are expressed.

Secondly, The Species or Kinds of Numbers are 3; *Viz.*

1. Digits.
2. Articles.
3. Mixt Numbers.

1. A Digit is any of the Nine forementioned Figures singly expressed, *Viz.* 1, 2, 3, 4, 5, 6, 7, 8, 9; which possess but one Degree or Place.

2. An Article is any of the 9 Digits with a Cypher or Cyphers, placed to the Right-hand; as 10, 100, 300, 5000, 6000, *&c.*

3. A Mixt Number is composed of Digits, or Cyphers and Digits, promiscuously placed together: As 12, 24, 96, 112, 102, 1769, *&c.*

Thirdly, The Order of the Places of Numbers is reckoned from the Right-hand toward the Left, as in the Table foregoing: Toward the Left-hand, 1 is in the First Place, 2 in the Second, 3 in the Third, *&c.* But the Order of reading Numbers is from the Left-hand, toward the Right, as shall be shewed by and by.

The Denomination of the Places is reckoned as followeth, and as in the foregoing Table.

NUMERATION
OF
Whole NUMBERS.

The Order of Places.	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
The Denomination of the Places.	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9
	C *Millions of Millions, &c.*	X *Millions of Millions.*	*Millions of Millions.*	C *Thousands of Millions.*	X *of Thousands of Millions.*	*Thousands of Millions.*	C *Millions.*	X *Millions.*	*Millions.*	C *Thousands.*	X *Thousands.*	*Thousands.*	*Hundreds.*	*Tens.*	*Units.*

Fourthly, Having premised this it will be easie to read any Number, observing onely these two things, *Viz.*

1. The place any Digit possesseth.
2. The value of that Digit.

1. By the preceding Table it is plain, that the first place toward the Right-hand, is the place of Units, the second the place of Tens, the third the place of Hundreds, *&c.*

2. Therefore suppose the Digit 9 stands in the Units place, the value of it is 9, that is 9 Units; if it stands in the second place, it is 9 Tens, that is Ninety; if in the third, or hundreds place, 'tis 9 Hundred, *&c.* So we will suppose that the Digit 7 stands in the fifteenth place which (by the foregoing Table) is Hundreds of Millions of Millions; and the value of that Digit possessing that place being (7) admitting therefore that all the places toward the Right-hand of the said

said (7) were supplied by Cyphers, the value of the Number would be Seven Hundred Millions of Millions; and in like manner the 15 Figures in the foregoing Table are thus read.

Seven Hundred Sixty Five Millions of Millions,
Four Hundred Thirty Two Thousand Millions,
One Hundred Twenty Three Millions,
Four Hundred Fifty Six Thousand,
Seven Hundred Eighty Nine.

And by the same Rules are all other Numbers expressed; where Note, that any of the places is Ten times the value of the place next it, toward the Right-hand; as 11111111111, or 1000000000, 100000000, 10000000, 1000000, 100000, 10000, 1000, 100; 10, 1, that is, One Thousand Millions, is Ten times One Hundred Millions, which is Ten times Ten Millions, which is Ten times One Million, which is Ten times One Hundred Thousand, which is Ten times Ten Thousand, which is Ten times One Thousand, which is Ten times One Hundred, which is Ten times Ten, which is Ten times One; and the whole Number being read, is One Thousand One Hundred and Eleven Millions, One Hundred and Eleven Thousand, One Hundred and Eleven.

Addition Teacheth to add sev.l sums togeather to make them one Total.

Pounds	Yards	Gallons	Quarts
1270	2734	3546	2795
1021	3946	5737	1501
2370	6542	7845	7160
8426	5763	6721	5072
5603	9708	9654	8540
7206	1246	4060	3026
4570	2090	7241	1867
3872	3427	5426	9742
2106	7602	3213	6381
7285	9841	9762	7690
1707	1056	2187	3786
2834	5407	8615	4502
Total			
Proof			

ADDITION
OF
Whole NUMBERS.

ADdition is either Simple or Compound.

1. Simple Addition is when Numbers are to be added that have but one Name or Denomination, as Pounds to Pounds, Feet to Feet, *&c.*

2. Compound Addition is when Numbers of divers Denominations are added together, as Pounds, Ounces, and Drams, to Pounds, Ounces, *&c.* in both which Cases these two Rules are to be considered.

The *First* is for the right placing the Numbers to be added.
The *Second* is for the adding together those Numbers after they are stated.

The Rule for placing the Numbers that are to be added.

Observe to write the Units place of all your lower Numbers, under the like place of the Number above, Tens place under Tens, Hundreds under Hundreds, *&c.* as in the Example foregoing, and those that follow: And if the Numbers to be added are of divers Denominations, you are to place all the lower Numbers under those of the same Denomination above; as if you add 17 *s.* to 2 *l.* 7 *s.* you must place the Numbers thus;

l.	*s.*
2:	07.
0:	17.

2. The Rule for adding Numbers of one Name together, let the Denomination be what it will, is;

Summ up every Series or lineal Row of Figures, beginning at the undermost Figure toward the Right-hand, and place the Digit above

Ten

Ten or Tens in that first Rank under the Line as followeth, and carry the said Ten or Tens to the next Rank toward the Left-hand, calling them so many Units (for they are no more of that next Rank) and add all the Rest of the Ranks as you have done the First; but if there is nothing above even Tens when you have added any Rank together, then place a Cypher under that Rank, proceeding to carry the Tens, as is before directed: As in the following Example.

		l.
Admit I have owing to me for	Holland-Cloath	3794
	For Thread	896
	For Cambrick	6285
	For Latten Wyre	3745
	For Sugar	2392
	For Nutmegs	3058
To know what Summ I am Creditor by, or what is owing me in all, I summ up the Particulars beginning with 8 at the	Total	20170

Angle toward the Right-hand, as was before directed, saying, 8 and 2 is 10, and 5 is 15, and 5 is 20, and 6 is 26, and 4 is 30; put a Cypher under the Line, and carry 3 to the next Rank toward the Left-hand, saying, 3 and 5 is 8, and 9 is 17, and 4 is 21, and 8 is 29, and 9 is 38, and 9 is 47; put the Seven under the Line, and carry 4 to the next Rank, saying, 4 and 3 is 7, and 7 is 14, and 2 is 16, and 8 is 24, and 7 is 31; put the 1 under the Line, and carry the 3 to the next Rank, saying, 3 and 3 is 6, and 2 is 8, and 3 is a 11, and 6 is 17, and 3 is 20; which put all down because you have no more Ranks, so will you find your self Creditor by 20170 Pound, and after the like Manner is any other Number of one Denomination added.

Secondly, For adding Numbers of divers Denominations together, observe this Rule;

Having the Numbers placed as is before directed, and as in the Examples following: Consider how many Units of the least Denomination in the Numbers given to be added, make a Unit of the next superior Denomination; and how many Units soever you find of the next greater Denomination contained in the whole Rank, or Series of the next lesser Denomination, so many must you carry to the said Rank of greater Denomination: And if any thing remain over and above a Unit or Units of the next higher Denomination, such overplus is to be placed under the Line.

To

Addition of Money

d	s	l	s	d	l	s	d
12	1	270	16	08 ½	397	17	10 ¼
24	2						
36	3	954	15	10	254	10	07
48	4	106	01	11 ¼	632	15	11
60	5	378	10	09	197	16	02 ½
72	6	452	19	00 ¾	540	17	06
84	7	670	12	07	325	19	08
96	8	201	00	06 ½	697	03	00
108	9	815	01	05	402	00	05 ¾
120	10	720	17	04 ¼	354	04	03
132	11	147	18	03	976	14	09
144	12	706	14	02 ¾	214	11	01 ½
		908	03	10	107	13	04
Total							
Proof							

To instance in the foregoing Example of Pounds, Shillings and Pence toward the Left-hand; where note by the way, that

$\frac{1}{4}$ is one Farthing or a Quarter of any thing.
$\frac{1}{2}$ is one Half-penny or 2 Quarters of any thing.
$\frac{3}{4}$ is three Farthings or 3 Quarters of any thing.

So in the Example aforesaid, 3 Farthings and 1 is 4, and 2 is 6, and 3 is 9, and 1 is 10, and 2 is 12 Farthings, or 3 Pence; which carry to the Pence, saying, 3 and 10 pence is 13 pence, and 2 is 15, and 3 is 18, and 4 is 22, and 5 is 27, and 6 is 33, and 7 is 40, and 9 is 49, and 11 is 60, and 10 is 70, and 8 is 78 pence, that is 6*s*. 6*d*.; put the 6*d* under the Line, and carry the 6*s* to the shillings, saying, 6 and 3 is 9, and 4 (taking but Units place of the shillings) is 13 and 8 is 21, and 7 is 28, and 1 is 29, and 2 is 31, and 9 is 40, and 1 is 41, and 5 is 46, and 6 is 52; put the 2 shillings under the Line, and carry the 5 to the Tens place of shillings, saying, 5 and 8 Ten shillings is 13; put the odd Ten shillings under the Line, and carry 12 Ten shillings to the pound, calling them 6 pounds (by taking half of them) saying, 6 and 8 is 14, and so forward as in the last Example of one Denomination, so you will find the Summ to be 6333*l*: 12*s*: 6*d*: by the same Rule and Method, may you find the Total of any other Number of pounds, shillings and pence: But,

Note that because in Quarters of Hundreds, Ounces, *&c.* the Difficulty of proceeding in that Method would be great; therefore your best way will be when you add Ounces in Averdupoize-weight, &c. to make a point or prick at every 16, so will you avoid charging the Memory, and may with ease carry the said points or pricks to the pounds; each point being 1 pound, a few Examples will make it plain, which take as followeth:

Ex-

Example 1. Troy-weight.				Example 2. Averdupoize-weight.					
lb.	ou.	dw.	gr.	Ton.	C.	Qr.	lb.	ou.	dr.
416	08	15	20	147	16	3	14	15	15
842	01	10	05	119	03	1	04	01	00
26	11	04	17	7	19	3	27	10	08
22	06	19	23	1	10	2	10	13	12
Total---1308	04	10	17	276	10	3	01	09	03

Example 3. Of Wine-Measure.				Example 4. Beer-Measure.			Example 5. Ale-Measure.		
Ton.	Buts.	H-bds.	Gal.	Bar.	Fir.	Gal.	Bar.	Fir.	Gal.
31	01	01	38	31	03	08	71	03	07
10	01	00	10	17	02	01	18	01	01
5	00	01	60	12	01	05	28	00	02
7	01	01	09	72	03	06	13	02	06
Tot.--55	01	00	54	134	03	02	132	00	00

By these few Examples with the help of the following Tables, the Learner will be enabled to add any Numbers proposed, of what Denomination soever. I shall therefore trouble him with no more, but proceed to the Tables which are usefull, not only in this Rule of Addition, but likewise in the following parts of Arithmetick.

TA-

TABLES
OF
English Coin, and Weight.

TABLE 1. *Of English Coin.*

4 Farthings is	1 Penny.	In 1 Pound Sterling are,	960 Farthings.
12 Pence	1 Shilling.		240 Pence.
20 Shillings	1 Pound.		80 ¾ Pences.
			60 Groats.

TABLE 2. *Of Troy-weight.*

32 Natural Grains of Wheat, or 24 Artificial Grains	1 Penny-weight.	In a Pound Troy are,	5760 Grains.
20 Penny-weight	1 Ounce.		240 P-weight
12 Ounces	1 Pound.		12 Ounces.

TABLE 3. *Of Averdupoize-weight.*

4 Qrs of a Dram	1 Dram.	In 1 Ton are	573440 Drams.
16 Drams	1 Ounce.		35840 Ounces.
16 Ounces	1 Pound. *l.*		2240 Pounds.
28 Pounds	1 Qr of 112 the *C.*		20 Hundred of 112 *l.* to the Hundred.
20 Hundred	1 Ton.		
19½ Hundred	1 Ton of Lead.		

Note that 56 ℔, is one Half, and 84 ℔, three Quarters of 112 ℔; which is the Merchant's Hundred.

TABLE 4. *Of Apothecary-weight.*

20 Grains	1 Scruple, marked ℈.	In a Pound Troy are,	5760 Grains.
3 Scruples	1 Dram ʒ.		288 Scruples.
8 Drams	1 Ounce ℥.		96 Drams.
12 Ounces	1 Pound ℔.		12 Ounces.

TABLES
OF
Liquid-MEASURE.

TABLE 5. *Of Wine-Measure.*

42 Gallons	1 Tierce.	In 1 Ton are,	6	Tierce or 252 Gallons.
1½ Tierce or 63 Gallons.	1 Hogs-head.		4	Hogs-heads.
2 Hogs-heads	1 Pipe or Butt.		2	Pipes or Butts.
2 Pipes	1 Ton.			

TABLE 6. *Of Beer-Measure.*

2 Pints	1 Quart.	In a Barrel are,	288	Pints.
2 Quarts	1 Pottle.		144	Quarts.
2 Pottles or 231 solid Inches is,	1 Gallon.		72	Pottles.
9 Gallons	1 Firkin.		36	Gallons or
2 Firkins	1 Kilderkin.		8316	Solid Inches.
2 Kilderkins	1 Barrel.		4	Firkins.
			2	Kilderkins.

TABLE 7. *Of Ale-Measure.*

2 Pints	1 Quart.	In a Barrel are,	256	Pints.
2 Quarts	1 Pottle.		128	Quarts.
2 Pottles or 282 solid Inches is,	1 Gallon.		64	Pottles.
8 Gallons	1 Firkin.		32	Gallons or
2 Firkins	1 Kilderkin.		9024	Solid Inches.
2 Kilderkins	1 Barrel.		4	Firkins.
			2	Kilderkins.

T. A.

TABLES OF MEASURE.

TABLE 8. *Of Dry-Measure.*

2 Pints	1 Quart.	In one Last are,	5120 Pints.
2 Quarts	1 Pottle.		2560 Quarts.
2 Pottles	1 Gallon.		1280 Pottles.
2 Gallons	1 Peck.		640 Gallons.
4 Pecks	1 Bushel Corn-Measure.		320 Pecks.
5 Pecks	1 Bushel Water-Measure.		80 Bushels.
8 Bushel	1 Quarter of a Chaldren.		10 Quarters.
4 Quarters	1 Chaldren.		2 Weys.
5 Quarters	1 Wey.		
2 Weys	1 Last.		

TABLE 9. *Of Long-Measure.*

3 Barly-Corns	1 Inch.	In a Mile are,	190080 Barly Corns.
12 Inches	1 Foot.		63360 Inches.
3 Foot or 36 Inches	1 Yard.		5280 Feet.
45 Inches	1 Ell English.		1760 Yards.
27 Inches	1 Ell Flemish.		320 Polls or Perches.
2 Yards	1 Fathom.		8 Furlongs.
5 Yards and $\frac{1}{2}$	1 Poll or Perch.		
40 Perches	1 Furlong.		
8 Furlongs	1 English Mile.		

Note, that though $5\frac{1}{2}$ Yards is a Statute-poll; yet in some Countries a Poll is $7\frac{1}{2}$ Yards, some 8 Yards called customary Measure.

TABLES
OF
Superficial-MEASURE.

TABLE 10. *Of Square or Superficial-Measure.*

16 Quarter of an Inch	1	Inch.
144 Inches	1	Foot.
9 Foot	1	Yard.
30 Yards and ½	1	Poll.
40 Poll long, and 1 broad	1	Rod of Land or Qr of an Acre.
4 Square Rods	1	Acre.
640 Acres	1	Square Mile.

In a Squ. Mile are,	4014489600	Sq. Inch.
	27878400	Feet.
	3097600	Yards.
	102400	Polls.
	2560	Roods.
	640	Acres.

TABLE 11. *Of Time.*

60" (Second)	1	Minute.
60 Minutes	1	Hour.
24 Hours	1	Natural Day.
7 Days	1	Week.
4 Weeks	1	Month.
13 Months 1 Day and 6 Hours	1	Solar Year.

In a Year are,	31557600	Secon.
	525960	Min.
	8766	Hours.
	365	Days &
	6	Hours.

But note that from the time the Sun leaveth 1 Tropick to the time it returns to that Tropick is 365 Days, 5 Hours, 49 Minutes, 4 Seconds, and 21 Thirds.

The

The Use of the Foregoing TABLES.

YOU have for each of the foregoing Denominations of Mony, Weight, Measure, *&c.* 2 Sorts of Tables, that toward the Left-hand, shewing how many Units of an inferiour Denomination, are contained in a Unit of the next superiour Denomination, by which you may know how to add or substract any Numbers of those Denominations. The other Tables toward the Right hand, shew how many Units of any of the lower Denominations is contained in the highest Denomination, which is very usefull for the speedy reducing of any thing from one Denomination to another.

As to the particular Tables: The *First* is of English Coin.

The *Second* Table is of Troy-weight; by which Weight is weighed Bread, Corn, Jewels, Gold, Silver, Amber, Electuaries; and all Measures for wet and dry Commodities are taken from this Weight, by a Statute made in the 51 of *Henry* III. it was provided that 24 Artificial Grains should contain 32 Grains of Wheat, taken out of the Middle of the Ear, and well dried; from which the other Denominations proceed as in the foregoing Table.

The *Third* Table is of Averdupoize-weight, 16 Ounces or one Pound of which is equal to 14 *ou.* 12 *p-w.* Troy: By this Weight is weighed all manner of things that have waste, as Physical and Grocery Drugs, Rozen, Wax, Pitch, Tarr, Tallow, Butter, Cheese, Soap, Hemp, Flax, Flesh, *&c.* all base Metals, as Iron, Steel, Tinn, Copper, Lead, Copperas, Allum, *&c.*

The *Fourth* Table is of Apothecary-weights, which they use in compounding their Medicines, though they buy and sell their Drugs by the Averdupoize-weight.

The *Fifth* is a Table of Wine-Measure.

The *Sixth* of Beer: And

The *Seventh* of Ale-Measure; where you may note, that the Ale-Measure is greater than the Wine or Beer, for the Ale Gallon containeth 282 Inches; whereas the Beer (or Wine) Gallon, containeth but 231 Inches.

The

The *Eighth* is a Table of Dry-Measure, by which is measured all kind of dry Substances; as Salt, Sea-Coal, Grain, Meal, *&c.*

The *Ninth* Table is of Long-Measure, whereby Long-Measure is meant, that wherein only Length is considered; as the measuring of Roads, Cloath, or any other thing, where no notice is taken of Breadth.

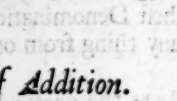
The *Tenth* is a Table of Superficial or Square-Measure, which is that wherein Length and Breadth is considered; by which kind of Measure the Content or Area of Board, Glass, Flooring, Tiling, Plaistering, Land, Painting, and many other things are measured; and note that as the superficial Foot containeth 144 Inches, that is, 12 in length and 12 in breadth; so the solid Foot containeth 1728 Inches, which is 12 long, 12 broad, and 12 thick.

The *Eleventh* Table is of Time, of which I need say nothing, but shall proceed to shew,

The Reason and Demonstration of Addition.

BY *Euclid*, Lib. 1. *Axium* 9. the whole is equal to all its Parts taken together.

To instance in the right line (*gh*) which is equal to the 3 lines *ab*, *cd*, and *ef*;



For the 3 lines *ab*, *cd*, and *ef*, being all the parts contained in the whole line *gh*, and the line *ab*, added to *cd*, and that Summ to *ef*, making up the line *gh*; therefore the line *gh*, is equal to the Summ of the parts, *viz.* to *ab*, more *cd*, more *ef*, taken together:

Or, in Numbers suppose I say, that 15, 16 and 42, make up 73, it cannot be denied since there are no more Units in 73, but 15, 16 and 42; nor no more Units in 15, 16 and 42; than 73; therefore the Number 73, must be equal to the Numbers 15, 16 and 42.

Parts	15
	16
	42
Total	73

2. The reasonableness of the Rules given for adding Numbers together will thus appear from what was said in Numeration, of the places of Numbers: For in Addition every degree or place must be added to the like degree or place; So that in the Units place, if there is one or two Tens, it is plain that those one or two Tens must be added to the Numbers in Ten's place, because they are of the same Denomination; so if in a Rank of Figures [in Ten's place] I find

2 or

2 or 3 times Ten, for every 10 in Ten's place, I have one Hundred to carry to the Hundred's place; for 10 times 10 is one Hundred, and as was observed before, Hundreds must be added to the Hundreds, because 'tis of the same degree or place:

For *EXAMPLE.*

In adding 149 *l.* 17 *s.* to 18 *l.* 8 *s*; I say, 8 shillings and 7 shillings, is 15 shillings, which is 1 Ten to be carried to the place of Ten shillings; which one Ten being added to the other Ten, makes 2 Tens or 20 shillings: Which being one Unit of the next Denomination, *viz.* Pounds: I therefore add the 1 pound to the Unit's place of pounds, saying, 1 and 8 is 9, and 9 is 18 pounds; which 8 being Units of Pounds, I place it in the Units of Pound's place of the Summ, and carry the 10 pound to the 10 Pound's place, of which Denomination it is one: So 1 Ten and 1 Ten is 2 Tens, and 4 Tens is 6 Tens, which being less than 10 Tens, or 100, I have nothing to carry to the Hundred's place; so I place 6 in Ten's place of the Summ, and put the 100 to the Left hand in Hundred's place of the Summ; this being observed, any Summ may be added (though with much trouble) without carrying any thing from one degree or place to another (which is done purely to save trouble) for instance;

	l.	*s.*	
	149	17	Parts
	18	8	
	168	5	Total

Let it be required to add,

2976	The Summ of the Figures in Unit's place is——15
4132	Of Ten's place is——140
8647	Of Hundred's place is——1600
	And of Thousand's place is——14000
15755	
	The Total of which is——15755

Because Addition and Substraction do prove each other, I shall shew the proof of Addition after Substraction, which followeth.

SUB-

Chap: 3.

Substraction Teacheth to take a Lesser Number from a Greater and to know ye Remainder

	£	£	s	d
Rec.d	7582094	457	09	07 1/4
Paid	6129762	126	16	10 1/2
Remains	1452332	330	12	08 3/4
Proof	7582094	457	09	07 1/4
Borr.	5469387	602	11	08
Paid	2672052	74	19	10 1/2
Rest				
Proof				
Dr.	1020060	894	00	01 1/2
Cr.	40709	372	14	09 3/4
Ballance				
Proofe				

SUBSTRACTION

OF

Whole NUMBERS.

AS in Addition, so Substraction is; either,

1. Of one Denomination: Or,
2. Of Numbers of divers Denominations, and is the Converse of Addition.

§ 1. When you have placed the Numbers in order (the lesser under the greater, as is usual, unless it may, as sometimes it does, save the trouble of removing a Number) this is the Rule.

RULE.

Having drawn a line under the Numbers given, begin with the Digit standing in Unit's place of the Number to be substracted, and take it from the Figure possessing the like place of the greater Number; placing the excess or difference under the line, doing in like manner with all the Rest. But if the Figure in the lesser Number be greater than the Figure possessing the like place in the greater Number; then you must add 10 to the said lesser Figure, and so proceed to take the said greater Number from the Summ, placing the Remainder under the line, and because the 10 borrowed was supposed to be taken from the next Figure toward the Left-hand; therefore add one to that Figure, and so proceed to substract, as in the former, placing the Excess under the line, as before.

EXAMPLE.

Admit I have laid out Cash, the Summ of 4579 pounds, out of 6947 pounds, which I had in bank; what Summ remains yet in my Hands?

The Numbers being placed: Take 9 in the Unit's place of the lower line from 7 in the like place in the upper line, but because you cannot, borrow 10 from the 70, which stands in the Ten's place, and add to the 7 which stands in the upper line, making it 17, so 9 from 17 will leave 8; which put under the line, and say 1 (that is 1 Ten) I borrowed and 7 is 8 from 4 and 10 you borrowed as before, that is from 14, leaves 6, which place under the line, saying, 1 you borrowed and 5 is 6 from 9 leaves 3, and 4 from 6 leaves 2, which being put under the line there will appear to remain in my hands 2368 pounds.

	£
	6947
	4579
Remains	2368

In like manner, if in the first Example foregoing, if you take 6129762 Hundred from 7582094, there will remain 1452332, for 2 from 4 and there rests 2, 6 from 9 rests 3, 7 from 10 (which I borrowed) rests 3; 1 borrowed and 9 is 10 from 12 rests 2, 1 borrowed and 2 is 3 from 8 rests 5; 1 from 5 rests 4, and 6 from 7 and there resteth 1; so the difference between the Numbers given is 1452332.

§ 2. *How to substract Numbers of divers Denominations.*

In the first Example foregoing of Pounds, Shillings, Pence and Farthings; you have 126*l.* 16*s.* 10¼*d.* to deduct from 457*l.* 9*s.* 7¼*d.* To perform which, begin with the farthings, saying, 2 from 1 you cannot, but 2 from 4 farthings (or 1 penny which you borrow from the pence) and the 1 farthing in the upper line, that is, from 5, and the remainer is 3 farthings; which put under the line as you see, saying, 1 I borrowed and 10 pence is 11 pence from 7 pence you cannot, but from 19 (borrowing 1 shilling or 12 pence from the shillings and adding to the 7) and the remainer is 8 pence; which put under the line, and say, 1 shilling you borrowed and 16 shillings is 17 from 29 shillings (borrowing 20 shillings or 1 pound from the pounds and adding to the 9 in the upper line) and there resteth 12 shillings, which place under the line. And say, 1 pound you borrowed and 6 (in the Pound's place) is 7 from 7 leaveth (0) put (0) under the Unit's place of pounds, and say 2 from 5 and there resteth 3, and 1 from 4 and there remains 3; so the Remainder is, 330*l.* 12*s.* 8¾*d.*

More

More Examples follow.

	C.	Qrs.	lb.
Bought Cotton-Wool	121:	1:	20
Sold out	92:	3:	27
Remains	28:	1:	21

	l.	℥.	p w.	gr.
Bought Silver-weight	19:	00:	09:	14

	l.	℥.	p-w.	gr.	
Sold out at one time	4:	10:	16:	00	In all 17:08:00:16
At another time	12:	09	04:	16	
Resteth unsold					1:04:08:22

§ 3. *A Second Way of Substraction.*

I think it a much better way when any thing is borrowed to add to the Figure in the greater Number, in case 'tis too little: To take what is borrowed from the Figure standing next toward the Right hand of the Figure that is too little, and suppose the Figure from whence you borrowed any Number to be so much less: So will you never need to pay what was borrowed, as is before taught.

EXAMPLE.

From	37921
Take	29184
Difference	8737

Here instead of saying 4 from 11 rests 7, and 1 borrowed and 8 is 9 from 12 rests 3: It will be much less trouble to suppose the 10 borrowed to be actually taken from the 2, as it really is, and so the rest of the Figures; so must you say 4 from 11 rests 7, 8 from 11 rests 3, 1 from 8 rests 7, 9 from 17 rests 8, 2 from 2 rest 0. This way of Substraction is much more natural and reasonable than the former, or common way; but the Learner may use which he pleaseth, though I doubt not but were this way as much practised as the former, it would be found much better.

§ 4. *The Reason and Demonstration of Substraction.*

From the *Axium* of the whole being equal to all its parts taken together, we may demonstrate (or undeniably prove) the premises. For the Number from whence we make Substraction is the whole, and the Number to be substracted is part of that whole: Now if the part be taken from the whole, what remains will be the true difference between the part and the whole; for the whole containeth no more parts than the Summ made of the part taken away, and the part remaining, and the part taken from the whole, is onely so much less than the whole as the part remaining; therefore the part remaining is the true excess or difference between the whole and the part taken from it.

As to the reason of the Rule for Substraction, I need say no more than what is above concerning the second way of Substraction, and what was said in the Reason of Addition, and what follows in the proving Substraction.

§ 5. *The Proof of Substraction two Ways.*

The Demonstration foregoing is sufficient to prove the Truth of Substraction; but because there was no Example take these following.

The Summ of the Subtrahend and Remainer is equal to the Number given, from whence Substraction is to be made, for instance.

From	56742	
Take	39752	Add.
Remains	16990	
Proof	56742	the Summ, equal to the Number, from whence Substraction is to be made; or,

thus by Substraction,

From the whole	56742	
Take the part	39752	
Remains	16990	Which deduct from the whole,
And there resteth the part given to be deducted,	39752	Proof.

§ 6. The

§ 6. *The Proof of Addition two Ways.*

After you have taken the Summ of the Numbers given to be added you may prove the Truth of that Summ by separating the said Numbers into two parts with a line, and the Summ of those parts will (if there is no Error) be equal to the Aggregate or Summ of all the Numbers given.

EXAMPLE.

	l.	*s.*		*l.*	*s.*
	5762	4	The summ of these parts	7182	17
	397	12			
	1023	01			
	8942	13	The summ of these parts	10543	01
	1600	08			
The total	17725	18			
			The total of these is equal to the first total,	17725	18 Proof.

Or thus by Substraction.

	l.	*s.*
The total Summ of the Numbers given is--	17725	18
from which deduct the first part--------	5762	4
Remains ----------	11963	14
from wch deduct the 2*d.* part of the Tot.	397	12
Remains----------	11566	02
from which deduct the 3*d.* part--------	1023	01
Remains----------	10543	01
from which deduct the fourth Number--	8942	13
And there remains----------	1600	08
from which deduct the fifth Number------	1600	08
And the Remainer is----------	0000	00

Which proves the Work.

MUL-

Multiplication Table

3 Times	3	9
	4	12
	5	15
	6	18
	7	21
	8	24
	9	27
4 Times	4	16
	5	20
	6	24
	7	28
	8	32
	9	36
5 Times	5	25
	6	30
	7	35
	8	40
	9	45
6 Times	6	36
	7	42
	8	48
	9	54
7 Times	7	49
	8	56
	9	63
8 Times	8	64
	9	72
9 Times	9	81
	10	90
	11	99
12 Times	2	24
	3	36
	4	48
	5	60
	6	72
	7	84
	8	96
	9	108
	10	120
	11	132
	12	144

MULTIPLICATION
OF
Whole NUMBERS.

MUltiplication is a Rule by which any Number may be ſo increaſed by multiplying it by another, as to produce a third Number, which ſhall bear ſuch reaſon or proportion to either of the Numbers given, as the other does to a Unit.

The two Numbers given to be multiplied, are for ſhortneſs termed the Factors: Or,

The one (commonly the greater) is called the Multiplicand, and is that Number given to be multiplied.

The other is called the Multiplier, and is that Number by which the Multiplicand is multiplied.

The third Number, which is that produced by multiplying the two given Numbers together, is called the Product, or in Geometry it is called the Rectangle.

By this Rule is compendiouſly performed many Additions, as 4 times 80 is 320, which would require 3 Additions to know; as you ſee in the Margent.

Multiplicand	80	Factors.
Multiplier	4	
Product	320	

80	Add.
80	
80	
80	
320	Summ

Multiplication is either Simple or Compound.

Simple when the Factors are both Digits: And,

Compound when the Factors are one or both mixt Numbers or Articles.

Before you go any farther you muſt get the foregoing Tables by heart, which ſuppoſing you have done take the following Rules for working any Summ propounded.

CASE 1.

When the Product of each Figure by the Multiplier is leſs than Ten, how to multiply by a Digit.

RULE

RULE

Having placed the Factor's Units under Units, as in the Margent, multiply each Figure in the Multiplicand by the Multiplier, and place the ſeveral Products under the line, beginning with the Figure in Unit's place of the Multiplicand.

EXAMPLE.

What comes 3214 pound of Tea to, at 2 pound *per* pound?

Say, 2 times 4 is 8, which put under a line as in the Margent; ſaying, 2 times 1 is 2, 2 times 2 is 4, and 2 times 3 is 6; ſo the Anſwer is, 6428 *l.*

3214
2
———
Product *l.* 6428 Anſw.

CASE 2.

When the product of any of the Figures in the Multiplicand is 10 or any Number of Tens.

RULE.

Put down in the General product the Number of Units, that the product of any Figure in the Multiplicand is above 10, or any Number of Tens, and carry the ſaid 10 or Tens to the product of the next Figure, and ſo proceed till all the Figures in the Multiplicand are multiplied by the Multiplier.

EXAMPLE.

What is the price of 3484 Bags of Cotton, at 9 pounds *per* Bag?

According to the Rule, ſay, 9 times 4 is 36, put the 6 under the line, and carry 3, ſaying, 9 times 8 is 72, and 3 I carry is 75, put down the 5 and carry 7, ſaying, 9 times 4 is 36, and 7 is 43, put down 3 and carry 4, ſaying, 9 times 3 is 27, and 4 I carry is 31, which put down; ſo will you find the Anſwer 31356 *l.* As *per* Margent.

3484 } Factors
9 }
———
Anſ. *l.* 31356 Product

CASE 3.

When the Factors are each above 10, how to find the Product.

RULE.

RULE.

Multiply the Figures in the Multiplicand by that ſtanding in the Unit's place of the Multiplier, as before, and in like manner multiply the Multiplicand by the Figure ſtanding in the Ten's place of the Multiplier; but you muſt place the Unit's place of the ſecond product under Ten's place of the firſt, and the other degrees in order, Tens under Hundreds, Hundreds under Thouſands of the firſt product; which done, add the products together, and the Aggregate or Summ is the General product required.

EXAMPLE.

What is the price of 549 Ton of Iron, at 18 pounds *per* Ton?

```
 594 }
  18 } Factors
 ----
 4752
 594
 ----
Anſ. l. 10692 Product
```

Note that if there had been 3 Figures in the Multiplier, when you were to multiply by that in Hundred's place; the firſt Figure of the product muſt have been placed under the 9 in the lower of theſe products: The following Examples will make it plain.

CASE 4.

When you have any Number of Cyphers toward the Right-hand of the Multiplicand and Multiplier: Multiply by the ſignificant Figures, and put the Cyphers toward the Right-hand of the Product.

EXAMPLE 1.

Admit the Earth's Circumference is 360 Degrees, and that one Degree is 60 Miles, how many Miles is it round the Earth?

```
360 Degrees }
 60 Miles   } Factors.
-----
Anſwer 21600 Product.
```

EXAMPLE 2.

If in a Mile is 1000 Paces, how many Paces in 1000 Miles?

```
1000 }
1000 } Factors.
------
Answer 1000000 Product.
```

In this and the like Examples where the Multiplier is onely a Unit with Cyphers; place those Cyphers to the Right-hand of the Multiplicand, and you have the true Product; for 1 neither augmenteth nor diminisheth any Number by Multiplication nor Division, and is therefore by some said to be no Number; but with what reason I know not.

EXAMPLE 3.

```
Multiply 3942300
   by     020020
            ------
            78846
         78846
      ----------
      78924846000 Product.
```

Note that when Cyphers stand in the Middle of the Multiplier, place the Unit's place of the Product made of the Figure standing next the Cyphers toward the Left-hand, so many places forward as there are Cyphers in the said Middle; as you see in the Example.

The Demonstration and Reason of Multiplication.

If two lines (or Numbers) be given, and one of them be divided into any Number of Parts; the product made of the two whole lines (or Numbers) is equal to the product made of the whole line (or Numbers) and the several parts of that divided. *Vid.* Euclid's *Elem. Prop.* 1. *Lib.* 2.

To instance in Numbers (because we are now treating of Arithmetick and not of Geometry) if 346 were to be multiplied by 122, which 122 suppose divided into 3 parts, *viz.* 100, 20 and 2: I say the

the product made of 346 by 122 is equal to the Summ of the products, *viz.* 346 by 100, 346 by 20, and 346 by 2; as followeth.

	346	346	346
	100	20	2
1*st*. Product=	34600	6920=2*d*. product	692=3*d*. product.
2*d*. Product=	6920		
3*d*. Product=	692		
Summ ——	42212		

the product equal to the product of 346
by 122

692
692
346

Viz. 42212

For there being no more Units in 42212 than in the products 34600, 6920, and 692, nor any more Units contained in 42212, but what is contained in the products 34600, 6920 and 692; therefore the products 34600, 6920 and 692, are equal to the product 42212.

From hence also is the reason of placing the Units of the second product under Tens of the first, Units of the third under Tens of the second, *&c.* as in the Example; where 324 by 3 is 972, 324 by 20 (2 being in Ten's place) is 6480, and 324 by 100 (1 being in Hundred's place) is 32400.

	324
	123
	972
	6480
	32400
The Summ	39852

DIVISION

Teacheth to Divide or Seperate any Number or Quantity into as many Parts as you please.

In this Rule

Observe 4 Things Viz.t } The { Dividend, Divisor, Quotient, Remain.r

DIVISION
OF
Whole NUMBERS.

THE Dividend is the Number given to be divided.

The Divisor is the Number by which the Dividend is divided.

The Quotient is the Number of times that the Divisor is contained in the Dividend.

The Remainer is the Number that may remain of the Dividend after the Divisor is had, as many times in it as is expressed in the Quotient; from whence it follows that the Remainer must be always less than the Divisor, or otherwise the Divisor might be had once more in it.

As Multiplication is a compendious way of Addition, so Division is the work of many Substraction; for if 12 be divided by 4, the Quotient would be 3; for 4 may be taken 3 times out of 12.

Dividend
Divisor 4) 12 (3 Quotient
———
0 Remainder

1*st*. from	12
take	4
remains	8
2*d*. take	4
remains	4
3*d*. take	4
remains	0

There are several ways that I could easily shew for the dividing one Number by another; but I shall onely incert one, which is plainer than cancelling, and shorter than the other ways commonly practised, and is therefore in my opinion the best way.

CASE 1.

To divide any Number by a Divisor consisting but of one place.

Let

Let it be required to divide 37642 by 7?

Having made a crooked (or any other) line at each end of the Dividend to separate it from the Divisor and Quotient, make a point or prick under 7 in the Dividend (not under 3, because you cannot take the Divisor from the 3) and say how often is 7 (the Divisor) contained in 37 the first Branch toward the Left-hand of the Dividend, the Answer is 5 times, which (5) put in the Quotient, and multiply the Divisor thereby saying, 5 times 7 is 35, which deduct from the said 37, and put the Remainer (which is 2) under a line, as in the Example: Then make a prick under the 6 (as a distinguishing Mark, that no Figure may be brought down twice) and place it to the Right-hand the Remainer (2) and ask how often 7 is contained in 26, the Answer is 3 times, which put in the Quotient as before multiplying the Divisor thereby; as 3 times 7 is 21 from 26 and there remains (5) which put under the 6 drawing a line between the 26 and the 5. Then make a prick under the next Figure toward the Right-hand in the Dividend, *Viz.* under (4) and place it to the Right-hand, the 5 making it 54, and ask how often the Divisor (7) can be had in 54, the Answer is 7 times, which put in the Quotient and say, 7 times 7 is 49 from 54 and there rests (5) which put under a line as before. Lastly make a prick under the 2 in the Dividend, and place it to the Right-hand the Remainer 5, which makes 52, and ask how often the Divisor (7) can be had in 52, the Answer is 7 times; which put in the Quotient, and multiply the Divisor thereby, saying, 7 times 7 is 49, which deduct from the 52, and the Remainer is 3, and you have no more Figures in the Dividend: So the Work is finished, and I find that 5377 is one seventh part of 37642.

```
Divisor] Dividend [Quotient
 7 )  37642   ( 5377
      -----
       26
      ----
        54
       ----
         52
        ----
          3  Remainder
```

```
 7 )  37642   ( 5377
      -----
       26
      ----
        54
       ----
         52
        ----
          3  Remains
```

The

The last Operation is thus contracted.

How often 7 in	Answer	Times 7 is	From	Rests	
37	5	35	37	2	To which bringing down the next Figure makes 26
26	3	21	26	5	
54	7	49	54	5	54
52	7	49	52	3	52

EXAMPLE 2.

By the foregoing Method is the Number following divided, *viz.* 917640 by 9.

```
                Dividend
Divisor 9 )   917640  ( 101960 Quotient
              ......
              ------
               17
              ------
                86
               -----
                 54
                ----
                ( 00 ) Remains
```

Note that when the Divisor cannot be had in any part of the Dividend, that is brought down under a line: In such case you are to put a Cypher in the Quotient, and bring down the next Figure in the Dividend; as in the Example 9 cannot be had in (1) therefore (0) is put in the Quotient, and 7 brought down, which makes the 1 to be 17, *&c.*

CASE 2.

To divide any Number by a Divisor consisting of 2, 3 or 4 places.

RULE.

It many times happeneth that in dividing a Summ by 2, 3, *&c.* Figures, That though you can have the first Figure of the Divisor in the Dividend, yet you cannot have the rest of the Figures of the Divisor in the like Number of Figures of the Dividend; as if 316 be divided by 182, in this case 1 (the first of the Divisor) can be had

3 times

3 times in 3 (the first Figure in the Dividend, but the rest of the Figures in the Divisor, *viz.* 82, cannot be had 3 times in 16 (the rest of the Figures in the Dividend) therefore you must make trial whether the Divisor can be had one time less in the Dividend; as here, see if 182 can be had 2 times in 316, by multiplying (in your mind, or on some piece of wast Paper) 182 by 2, which product if you find yet more than the Dividend 316, (as in this Example you will, and consequently cannot be deducted from it) then take 182 but 1 time in 316, and put 1 in the Quotient. Take good notice of this for it is the onely difficult thing in Division, and that it may appear plain, take the Example following.

Let it be required to divide 75231 by 24?

```
24) 75231 (3134
    ....
    ------
      32
    ------
       83
    ------
       111
    ------
        15 Remainder
```

To perform this:

1. Make a point under 5, because you can deduct 24 from 75, otherwise the point must have been made under the third place.

2. Ask how often 2 can be had in 7; the Answer is 3 times.

3. Before you put the 3 in the Quotient, make trial in your mind, if the product of 24 (the Divisor) by 3 do not exceed 75, which you will find it does not.

4. Therefore put 3 in the Quotient, and say, 3 times 4 (the Unit's place of the Divisor) is 12, which deduct from the 5, and 10 that you borrow (for you must always borrow so many Tens, as that the said product of the Figure in the Quotient and Divisor may be deducted) that is, from 15, and the Remainder is 3; which put under a line, and carry the 1 Ten you borrowed in your mind, saying, 3 times 2 (in the Divisor) is 6, and 1 you borrowed is 7, from the 7 in the Dividend, and the Remainer is (0).

5. To

5. To the Remainer (3) bring down the next Figure in the Dividend, which is 2.

6. Ask how often 2 can be had in 3, or how often 24 (your Divisor) can be had in 32, the Answer is 1.

7. Put 1 in the Quotient.

8. Multiply 24 (the Divisor) by 1, saying, 1 time 4 is 4 from 12 (borrowing 10) and there rests 8; which put under the line, saying, 1 time 2 is 2, and 1 borrowed is 3 from 3 and the Remainer is (0).

```
24) 75231 (3134
    -----
Remains 32 Brought down
    -----
Remains 83 Brought down
    -----
Remains 111 Brought down
    -----
        15 Remainder
```

9. To the Remainer 8 bring down the next Figure in the Dividend, which is 3, (always making a point under the Figure you bring under the line for the reason aforesaid) so have you 83, enquire therefore,

10. How often 2 the first Figure in the Divisor toward the Left-hand can be had in 8, the Answer is 4 times; but if you make trial you will find the product of 24 by 4 to exceed 83, so that you can but have 24, 3 times in 83.

11. Put 3 therefore in the Quotient, as you see in the Example.

12. Multiply 24 the Divisor by 3, saying, 3 times 4 is 12 from 13 (borrowing 10 to add to the 3, last brought down) and there remains 1; which put under the line, as you see, saying, 3 times 2 is 6, and 1 borrowed is 7, from 8 and there remains 1; which being in the Ten's place, makes Eleven.

13. To this 11 bring down the last Figure from the Left-hand in the Dividend, *viz.* (1) and you have 111.

14. Enquire how often 24 (the Divisor) can be had in 111, or how often 2 in 11 (because 111 is 1 place more than 24 (the Answer is but 4 times, (for if you take it 5 times, you cannot deduct 5 times 24 from 111.)

15. Multiply 24 the Divisor by the Figure you put in the Quotient, which is by 4, saying, 4 times 4 is 16 from 21 (borrowing 2 Tens to add to the 1 in Unit's place) and there rests 5, and carry 2, and 4 times 2 in the Divisor is 8, and 2 borrowed is 10, from 11 the last Remainer, and there remains 15: So the Work being finished, I find that 24 is contained in 75231, 3134 times, which I have

have made so plain (proceeding step by step) that any one though of ordinary Capacity may understand it, and by it any other of the like Nature, though the Divisor consists of never so many Figures; take one other Example of this Case.

Let it be required to divide 319462 by 548?

```
548 ) 319462 ( 582
      ...
      ------
       4546
       ----
        1622
        ----
         526 Remainer
```

By the Rules foregoing this last Operation, will be performed as followeth.

How often 548 in { 3194, 4546, 1622 } Answer { 5, 8, 2 }

5 Times:
- 8 is 40 from 44, rests ——— 4
- 4 is 20, & 4 is 24, from 29, rests ——— 5
- 5 is 25, & 2 is 27, from 31, rests ——— 4

Remains 454 To which bring the 6 & enquire.

8 Times:
- 8 is 64 from 66, rests ——— 2
- 4 is 32, & 6 is 38, from 44, rests ——— 6
- 5 is 40, & 4 is 44, from 45, rests ——— 1

Remains 162 To which bring the 2 & enquire.

2 Times:
- 8 is 16 from 22, rests ——— 6
- 4 is 8, & 2 is 10, from 12, rests ——— 2
- 5 is 10, & 1 is 11, from 16, rests ——— 5

Rmainer 526

CASE

CASE 3.

When any Number of Cyphers possess the *1st. 2d. 3d, &c.* places of the Divisor, how to abreviate the Work.

RULE.

As many Cyphers as you have in the Divisor toward the Right-hand; so many Figures separate (toward the Right-hand of the Dividend) from the rest by a point or dash with the Pen, and divide the remaining Figures toward the Left-hand in the Dividend, by the significant Figures in the Divisor, leaving out the Cyphers: See the Operation following.

```
1562900 ) 137428120 ( 87
          |  ..|
          ---------
          123961
          ---------
          1455820   Remains to be divided into
                    1562900 parts, which
                    will be less than a Unit.
```

EXAMPLE 2.

```
197281000) 5171624|1|0|2|3|5|0|128 ( 26214506
           |   ..|..|..|..|..|..|
           ---------------------
           1226004
            423181
             286190
              889092
               999683
                132785
                 1327850
                 ---------
                 144164128  Remains to be divided into
                            197281000 Parts.
```

EXAMPLE 3.

100) 3654 (36
1 1

54 Remainer to be divided by 100.

Note that when the Divisor is a Unit with Cyphers, as this last Example; then if you separate so many Figures from the Right-hand of the Dividend, as there are Cyphers toward the Right-hand in the Divisor (as was taught before) that part of the Dividend toward the Left-hand of the Dash is the Quotient, and that to the Right-hand is the Remainer; as in this Example, you see 36 is the Quotient, and 54 the Remainer; because when the Cyphers are cut off the Divisor, there remains onely 1 to divide by, and it has been taught before that no Number is made less by dividing by 1.

§ 2. *The Manner of working Division explained, and the Reason of it shewed.*

The two great Difficulties that are in Division are,

1. That when a Number is to be divided by another, consisting of several Degrees or Places of Figures, it cannot be known without Trial, how often the Divisor can be had in the Dividend.

2. The suctstracting the several Products made of the Quotient, and Divisor from the Left-hand of the Dividend, seems incoherent with the Rules of Substraction, of deducting Unit's place from Units, Ten's place from Tens, *&c.*

To explain and remove both which Difficulties, take the Example and Rules following, where the whole Work of Division is made plain, and easie to be understood by a mean Capacity.

The Example I make use of shall be to divide 19467281 by 426?

The

The Work of Division explained.

Products of the Divisor.				
1	426)	19467281	(40000	First Quotient
		17040000		
2	852	2427281	5000	Second Quotient
3	1278	2130000		
4	1704	297281	600	Third Quotient
5	2130	255600		
6	2556	41681	90	Fourth Quotient
7	2982	38340		
8	3408	3341	7	Fifth Quotient
9	3834	2982		
		(Rem. 359.)	45697	The Summ of these Quotients, which is the true General Quotient.

In this Example,

1. I have made Products of the Divisor, multiplying it by the several Digits against which the said Products stand.

2. As is usual I prick under the 6 in the Dividend, because I can take the Divisor from the 4 first Figures toward the Left-hand of the Dividend.

3. I consider what place the first Figure in the Quotient toward the Left-hand will possess, which is always the same with the Figure, under which the first Point or Prick is made, and in this Example is Tens of Thousand's place; so that what Figure soever is first put in the Quotient, is so many Tens of Thousands.

4. I look in my 9 Products, which of them is next to, and less than the 4 first Figures to the Left-hand of the Dividend, and find the Product 1704 to be next; right against which in the Series of Digits

Digits ſtands 4, wherefore I put 4 in the Quotient which is 40000, becauſe (as was ſaid in the laſt ſtep) the Quotient will have 5 Places.

5. I multiply the ſaid 1704 by 10000, becauſe the 4 is in that place, or the Diviſor by 40000, and the Product is 17040000, which (according to the true Rules of Subſtraction) is to be taken from the whole Dividend, and the Remainer (as in the Example) is 2427281.

6. I look as before, which of the 9 Products is next to, and leſs than the 4 firſt places toward the Left-hand of my new Dividend 2427281 (becauſe none of the Products can be had in 3 places) and I find 2130, right againſt which ſtands the Digit 5, which muſt be 5000, becauſe it is to ſtand in the Thouſand's place of the Quotient; where having placed it, multiply (as before) the 2130 by 1000, or the Diviſor by 5000, and deduct the Product from the new Dividend 2427281, proceeding with the reſt of the Figures till nothing, or a Number leſs than my Diviſor remain; which done,

7. I ſumm up the 5 Quotients as in the Example, which make the General Quotient 45697, and ſo the Work is ended.

§ 3. *The Demonſtration of Diviſion.*

The Deſign of Diviſion is to diſcover how often one Number is contained in another, and (if nothing remain after Diviſion) the Quote is an even part of the Dividend, and contains a Unit ſo often as the Dividend containeth the Diviſor.

The Diviſor ſheweth how many parts the Dividend is to be divided into, and the Quotient is one of thoſe parts; as if 400 were divided into 8 parts, 8 will be found to be contained in 400, 50 times; ſo that 50 is one Eighth part of 400, for 400 is 8 times 50, and conſequently 50 is one Eighth of 400, and the like may be ſaid of other Numbers.

§ 4. *The Proof of Diviſion.*

Diviſion may be proved by dividing the Dividend by the Quotient, and the Quotient will be your Diviſor: Or, you may prove it (as is more uſual) by Multiplication; for if you Multiply the Quotient and the Diviſor together, the Product will be equal to your Dividend.

To inſtance, in the Numbers following: If 1728 be divided by 12, the Quotient will be 144; and if for proof, you divide 1728 by 144, the Quotient will be your former Diviſor (12): Or, if you multiply

tiply 144, the Quotient, by 12, the Product will be 1728 : See the Work.

```
12)  1728  (144  Quotient }
      ...   12   Divisor  } Multiply
     ----  ----
      52   288
     ----  144
      48  ----
     ----  1728 The Dividend for proof
Rem, 0.
```

Or thus by Division :

```
144) 1728 ( 12  The former Divisor
     ..
     ----
     288
     ----
       0 Rem.
```

§ 5. *The Proof of Multiplication.*

The onely true way to prove Multiplication, is by Division; for if you divide the Product by either the Multiplicand, or Multiplier, the Quotient will be the other.

EXAMPLE.

In the Example of the second Case of this Chapter, 3484 being multiplied by 9, produceth 31356 :
And if 31356 be divided by 9 the one Factor, the Quotient is the other Factor, as in the Example.

```
9) 31356 ( 3484  Quotient
   ....
   -----
    43
    ---
     75
     ---
      36
      ---
       0 Remains
```

Some

Some Authors have taught to prove Multiplication, by taking the Nines out of the Factors singly, and multiplying the Remainers together, and taking the Nines (if any be) out of the Product, noting that Remainer; then take the Nines out of the first Product, and if the Remainer be equal to the forementioned, they conclude the Work to be right: but that does not at all follow, for by this Rule you may prove a Thousand false Products as true ones: Example,

Admit 3765 were to be multiplied by 58, the true Product is 218370, (but if you suppose the Product 398370, which is 180000 too much,) or 245370, which is 27000 too much, they will both prove right according to this Method; nor is there any other Method to prove Multiplication by, so true and concise as by Division; though 'tis indeed needless to prove every Summ you work, by any Method, provided you be carefull in the Operation; or it may not be amiss if your Work is great, to run it over twice very carefully, and if you find both times agree, 'tis to be supposed your Work is right.

Reduction

Reduction is a Rule consisting of two Parts, viz.t

1.st The Reduceing of a Number, from a greater to a lesser Denomination, as Pounds into Shillings, Hundreds into Pounds, Yards into Feet &c.ch. is called Reduction Descending, and is performed by Multiplication.

2.d The Reduceing a Number from a lesser to a greater name or Denomination, as Feet into yards, Gallons into Barrells, Farthings into Pounds &c.ch. is called Reduction Ascending, and is performed by Division. So that all Questions in Reduction are resolv'd either by Multiplication, or Division, or both, which shall be farther explained by the Questions following.

Reduction Descending.

§2. CASE 1.

WHEN a Number of one Denomination is given to be reduced into a lesser Denomination.

RULE.

Multiply the given Number by such a Number of Units of the inferior Denomiuation into which you would have the Number given reduced, as are contained in a Unit of the Denomination which is given, and the Product is the Answer.

EXAMPLE 1.

In 476 Pounds, how many Farthings?

```
  476 Pounds                  l.  }
   960 The Farthings in 1         } Multiply
 ------
 2856
4284
 ------
456960 Farthings for Answer.
```

EXAMPLE 2.

In 87 Hundred Weight, how many Pounds?

```
   87 Hundred                      }
  112 Pounds in one Hundred        } Multiply
 ------
  174
 87
87
 ------
 9744 Pounds for Answer.
```

EXAMPLE 3.

In 527 Ells Flemish, how many Quarters of a Yard, each Ell being three Quarters of a Yard?

527 Ells
3 Quarters of a Yard in an Ell } Multiply

1581 Quarters of a Yard for Answer.

EXAMPLE 4.

In 328 Bails of Dowlass, how many Pieces?

328 Bails
3 Pieces in a Bale } Multiply

984 Pieces for Answer.

EXAMPLE 5.

In 484 Gross of Tape, each Gross 12 Dozen, each Dozen 2 Pieces, and each Piece 36 Yards, how many Yards?

484 Gross
12 Dozen in a Gross } Multiply

968
484

5808 Dozen in 484 Gross
72 Yards in a Dozen } Multiply

11616
40656

418176 Yards for Answer.

CASE 2.

When it is required to reduce Numbers of divers Denominations, into the lowest Denomination.

RULE.

Work as in the last Case; but if you have any Number of the next inferior Denomination to that you are reducing, add such Number to the Product.

EX-

EXAMPLE 1.

In 364 *l.* 05 *s.* 5 *d.* How many Pence?

l.	*s.*	*d.*	
364:	05:	5:	Multiply and Add the 5 *s.*
20:	The shillings in a pound		
		l. *s.*	
7285	Shillings in 364:	05:	Multiply and Add the 5 *d.*
12	Pence in a shilling		
14575			
7285			
		l. *s.* *d.*	
87425	Pence in 364:	05: 5:	For Answer.

In the last Example in reducing the pounds, say, (0) times 4 (in the pounds) is (0), but 5 (in the shillings) is 5 shillings; then say, 2 times 4 is 8, *&c.* And when you come to the shillings, say, 2 times 5 shillings is 10, and 5 in the Pence place is 15 pence, put down 5, and carry 1, *&c.* Note that if you had any thing in the Ten's place, either in the shillings, pence, *&c.* you must add them when you multiply by the Figure in the Ten's place of the Multiplier.

EXAMPLE 2.

In 48 *l.* 17 *s.* 11 *d.* 2 *q.* How many Farthings?

l.	*s.*	*d.*	*q.*	
48:	17:	11:	2:	Multiply and Add 17 *s.*
20:	The shillings in a pound			
			l. *s.*	
977	Shillings in 48:		17:	Multiply adding the 11 *d.*
12	Pence in a shilling			
1955				
978				
			l. *s.* *d.*	
11735	Pence in 48:		17: 11:	Multiply and Add 2 *q.*
4	Farthings in a Penny			
			l. *s.* *d.*	
46942	Farthings in 48:		17: 11½	For Answer.

EXAMPLE 3.

In 47 C. 2 Qrs. 24 ℔. How many Pounds?

C.	Q.	℔.	
47:	2:	24:	
4 Quarters in 112 ℔.			} Multiply and Add the 2 Qrs.
190 Quarters in 47:		C. Q. 2	} Multiply and Add the 24 ℔.
28 Pounds in 1 Q. of C.			
1524			
382			
5344 Pounds in 47:		C. Q. 2:	℔. 24 For Answer.

This Question is more briefly resolved, as in the Margent, by first putting down your 47 C. 4 times, and the 2 Q. 24 ℔, which is 80 ℔, in Ten's and Unit's place; so the Summ is the Answer.

C.	Q.	℔
47:	2:	24
47		
470		
478		
5344 ℔ Answer.		

§3. *Reduction Ascending.*

To reduce Numbers from a lesser to a greater Denomination.

CASE 1.

When the Number given is to be reduced to the next superiour Denomination.

RULE.

Divide the said given Number by such a Number of Units of the Denomination given, as make a Unit of the next superiour Denomination, and the Quotient is the Answer.

EX-

EXAMPLE 1.

In 984 Pieces of Dowlass, how many Bails, each 3 Pieces: See the Operation.

```
3 ) 984 ( 328 Bails for Answer.
    ...
    ---
     8
    ---
     24
    ---
      0
```

EXAMPLE 2.

In 9744 Pounds, how many Hundreds?

```
112 ) 9744 ( 87 Hundred for Answer.
      ...
      ----
       784
      ----
         0
```

CASE 2.

When a Number is to be reduced to a Denomination higher than the next superiour Denomination.

RULE.

Divide the given Number, as before, by such a Number of Units of the Denomination given, as makes a Unit of the next higher Denomination, and note the Remainer. Then divide that Quotient by so many Units of that Name or Denomination, which it is of as makes a Unit of the next higher Denomination to the said Quotient, &c. noting the Remainers, as in the Examples following.

EX-

EXAMPLE 1.

In 87425 Pence, how many Shillings and Pounds?

```
                    s.     l.
12 ) 87425 ( 7285 ( 364
     ....20)...|
     ------|-----
       34     12
     ------   ----
      102      8        l.   s.   d.
     ------   ----   Answer 364: 05: 05:
       65     05s. Rem.
     ------
      5 d. Remains
```

EXAMPLE 2.

In 5344 ℔. How many Quarters, and Hundreds?

```
                  Q.   C.
28 ) 5344 ( 190 ( 47
     ...     ..
     ----  4)---
      254    30
     ----   ---
Rem. (℔ 24)   (2) Quarters remains
                        C.  Q.  ℔
                Answer 47: 2: 24
```

EXAMPLE 3.

In 418176 Yards, how many Gross of Tape?

Divide the given Number by 72, and that Quotient by 12, for Answer; because 72 Yards is 1 Dozen, and 12 Dozen 1 Gross.

```
                    Dozen
72 ) 418176 ( 5808 ( 484 Gross for Answer.
     .....12)
     -------  ----
       581    100
     -------  ----
       576     48
     -------  ----
      0 Rem.  0 Rem.
```

These Questions are the Converse of those in Reduction Descending, and may serve for proof of them, and likewise to shew the Learner the Coherence of the Rules.

Re-

§ 4. *Reduction Ascending and Descending.*

Questions performed by Multiplication and Division are these that follow; and such like.

EXAMPLE 1.

In 874 Ells Flemish, how many Ells English?

Multiply the given Number by 3, and divide the Product by 5, and the Quotient is the Answer.

```
      874 Ells Flemish
        3 Quarters of a Yard in 1 Ell } Multiply
    ------
  5 ) 2622 ( 524 Ells English for Answer.
      ...
      ----
       12
      ----
        22
      ----
         2 Rem.
```

Note that the Remainer is always of the same Denomination with the Dividend.

EXAMPLE 2.

In 846 Dollars, each 4 *s.* 6 *d.* How many pounds Sterling?

```
      846 Dollars
       54 Pence per Dollar } Multiply
    ----
     3384
    4230
    ------
                  s.        l.    s.
 12 )  45684 d.( 3807  ( 190 :  7
       ....  20) ..
       ----  |  ----
        96      18
       ----    ----
        84       0 Remains
       ----
         0 Remains
```

In

EXAMPLE 3.

In 46 C. of Cotton-wool, how many Pounds, and what the Price, at 15 *d*, a Pound? Answer 322 *l*.

```
 46 C.                          d.        s.      l.
 46                      12 ) (77280  ( 6440  ( 322
 46                              ....     ...|
 46                                  20)
 ----                                 |
 5152 Pound                        52      4
   15 Pence for 1 Pound } Multiply
 -----                            48      4
 25760                       Remains 0.   0 Rem.
 5152
 -----
```

77280 Pence for Answer; which reduce into Pounds as before taught, and *per* Margent.

THE

other Principal on which the fourth Number (which is the Num-

The Golden Rule

Is so called from it's extraordinary usefulness, not only in Arithmetical Questions, but in all parts of the Mathematicks.

It is also called the Rule of Three, because there is always Three Numbers given to find a Fourth, and it is properly called the Rule of Proportion, because the First Number bears such proportion to the second, as the third, does to the Fourth.

The design of this Rule is to shew how to find a Fourth Proportionall Number; by having Three given Numbers, which is deducible from the 16.th prop: of the sixth Book of Euclid's Elements. The Rule is

Multiply the 2.d & 3.d Numbers together, & divide the Product by the first number, & the Quotient thence arisseing is the Fourth Number sought. or

Divide the 2.d Number by the 1.st & multiply the Quotient by the 3.d number, & the product is the Number required. For the 4.th number contains the 3.d so often as the 2.d contains the first, and this is called direct

Proportion.

THE SINGLE RULE OF Direct Proportion.

ALL the Difficulty in this Rule consisteth in the right stating the three Numbers given; for when you have done that, you have onely Multiplication and Division, and the Work is performed: The Rule therefore for stating any Question in this kind of Proportion is.

RULE.

Consider that of the three Numbers given you, have always Two of one Denomination: And,

That Number which is of another Denomination, must be always placed in the second Place; and to the Left-hand thereof must be placed that Number (of the Two of one Denomination) on which the Second has dependance, and the other of the said Numbers of one Denomination, must be placed next the Right-hand: As supposing it were required to know what the Interest of 75 pound is at the rate 8 Pound *per Cent. per Annum*, the Numbers will be stated thus:

L. prin.	*L. int.*	*L. prin.*
100 :	8 : :	75.

In this Example there are two Numbers that are Principal Mony, and one that is Interest; therefore the Interest (according to the Rule) must stand in the Middle, or second Place; the Principal on which the Interest dependeth, *Viz* 100 (8*l.* being the Interest thereof) must stand in the first Place toward the Left-hand, and the other Principal on which the fourth Number (which is the Num-

ber ſought for) dependeth, muſt poſſeſs the firſt Place toward the Right-hand.

By theſe Rules foregoing, you may with Eaſe and Certainty perform any Operation in Direct Proportion, and for your farther Information take the Examples following.

EXAMPLE 1.

If the Intereſt of 100 *l.* for one Year be 8 *l.* what is the Intereſt of 75 Pound for the ſame Time ?

```
L.P.  L.I.  L.P.
100 : : 8 :  75
             8
           ----
           l.
100 )  600  ( 6 For Anſwer
```

EXAMPLE 2.

If 32 Rundlets of Brandy coſt 96 pounds, what will 4 Rundlets coſt at that rate ?

```
Rund.   l.     Rund.
 32 :  96 : :   4
        4
      ----
32 )  384  ( 12 lb Anſwer.
      ----
       64
      ----
        0 Remains
```

EX-

EXAMPLE 3.

If 12 Baggs of Cotton-wool coſt 184 *l*, what will 17 Baggs coſt?

```
Baggs  l.   Baggs
 12 : 184 :: 17 :
        17
      ----
      1288
      184
     -----
12 )  3128  ( 260 l.
      ..
     -----
       72
     -----
        8 Pound remains
       20 Shillings multiply
     -----
12 )   160  ( 13 Shill.
       .
     -----
        40
     -----
         4 Shillings remain
        12 Pence multiply
     -----
12 )    48  ( 4 Pence
     -----
         0 Remains
```

l.	*s.*	*d.*	
260 :	13 :	4	Anſwer.

Note that (as in the laſt Example) when any thing remains that is reducible to a lower Denomination; after it is ſo reduced, it muſt be divided continually by the firſt Number.

CASE 2.

When any of the three Numbers given happen to be of divers Denominations, you may reduce them into the loweſt Denomination. And if your firſt Number require to be reduced; your Third muſt be reduced likewiſe into the ſame Denomination as the firſt, and the contrary: For the firſt and third Number, before you begin your

Operation, muſt be always reduced to one Name, as was ſaid before.

EXAMPLE 1.

If 17 Hogs-heads of Sugar coſt 320*l.* 12*s*, what will 5 of thoſe Hogs-heads be worth?

```
H-hds  l.   s.  H-hds
 17 : 320 : 12 ::  5
       20
      ----
17 ) 6412 Shillings }
        5 H-heads   } Multiply
      ----
        s.      l.   s.   d.   q.
17 ) 32060 ( 1885 ( 94 : 5 : 10 : 2 6/17
     ....20) .|
     ------  |  ------
      150        8
      ---        ---
      146        0 Remains
      ---
      100
      ---
       15 Shillings remains }
       12 Pence in a ſhilling } Multiply
      ---
       30
       15
      ---
17 )  180 ( 10 Pence
      ---
       10 Pence remains }
        4 Farthings     } Multiply
      ---
17 )   40 ( 2 Farthings
      ---
        6 Quarters remains to be divided by 17.
```

Note that when you have multiplied the ſecond and third Numbers together, and divided the Product by the Firſt, the Quotient is of the ſame Denomination, as the ſecond Number is; after you have reduced it (as in the laſt Example) into its loweſt Denomination given.

EX-

EXAMPLE 2.

If 4 C. 1 Q. 24 ℔ of Sugar cost 14 *l.* what will 18 C. cost?

```
C.  Q.  ℔   l.   C.
4 :  1 :  24 : 14 :: 18
4                    18
42                  18
45                  18
———                 ———
500 ℔             2016 ℔ of Sugar } Multiply
                    14 l. Sterling }
                  ————
                  8064
                 2016
                 ————      l.  s.  d.  q.
500 ) 28224 ( 56 : 8 : 11 : 2 40/500 Answer
 |     ··|
                 ————
                   32
                 ————
                  224 Pound remains } Multiply
                   20 Shillings in 1 l. }
                 ————
500 ) 4480 ( 8 Shillings
 1     ·1
                 ————
                  480 Shillings remain } Multiply
                   12 Pence }
                 ————
                   96
                  48
                 ————
500 ) 5760 ( 11 Pence
 1     ··1
                 ————
                  260 Pence remains } Multiply
                    4 Farthings }
                 ————
500) 1040 ( 2 Qrs
 1.    .1
                 ————
                   40 Farthings remains to be divi-
                      ded by 500
```

Note

Note farther, that what Farthings remains to be divided by the common Divisor (as in the last Example) because you can reduce them into no lower Denomination, you may place them over your Divisor, as Fractions of a Farthing, which shall be explained when we come to vulgar Fractions, *&c.*

CASE 3.

When the first Number of the 3 given, is but a Unit, the Operation is performed by Multiplication onely.

EXAMPLE 1.

If I give 15 Shillings for a Pound of Thread, what will 250 ℔ cost me at that Rate?

℔.	*s.*	℔.
1:	15::	250
		15
		125
		25
		3750 Shillings Answer, or 187 : 10:
		l. *s.*

EXAMPLE 2.

At 14*l.* 10*s.* 6*d.* *per* Bagg of Hopps, what cost 55 Baggs?

Bag.	*l.*	*s.*	*d.*	*Bags*
1:	14:	10:	6:	:55.
	20			
	290 Shillings			
	12			
	3486 Pence			} Multiply
	55 the 3d. Numb.			
	17430			
	17430			
	191730 Pence Answer, or 798 : 17 : 6			
			l. *s.* *d.*	

E X-

CASE 4.

When the third Number of the 3 given (or that toward the Right-hand) is a Unit; such Operation is performed by Division onely; if the Number need no reducing.

EXAMPLE 1.

If 40 Pieces of broad Cloath cost 590 *l.* what will one Piece cost?

Pieces. l. Pieces.
40: 590 :: 1
40) 590 ($14\frac{3}{4}$ *l.* or 14 *l.* 15 *s.* Answer.
19
3 Pounds remains.

EXAMPLE 2.

If 14 Hogs heads of Tobacco, poize Nett 9285 ℔, cost 619 *l.* 10 *s.* what will one Pound cost at that Rate?

℔ *l.* *s.* ℔ *s.* *d.* *q.*
9285: 619: 10:: 1. Answer 1: 4: $0\frac{480}{9285}$
20
9285) 12390 *s.* (1 Shilling
3105 Shillings remains
12
9285) 37260 *d.* (4 Pence
120 Pence remains
4
480 Farthings remains to divide by 9285.

§ 2. *Sim-*

§ 2.

Whereas in the former Section of Direct Proportion, the fourth Number was always proportionably greater than the Third, as the Second was greater than the First: in this kind of Proportion, on the contrary, the greater the third Number is, the less is the Fourth, and the less the Third is, the greater is the Fourth; and it is therefore called Indirect or Reverse Proportion.

And whereas in the last Section the Product of the First and Fourth is equal to that of the Second and Third; in the Proportion I am now treating of, the Product of the Third and Fourth is equal to that of the first and second Numbers; which may serve as a Proof for both.

The Method of stating any Question in this Proportion, is the same with Direct; but to find the Number required this is the

RULE.

Multiply the first and second Numbers toward the Left-hand together, and divide the Product by the Third, and the Quotient arising, is the Answer.

A Rule to know whether a Question proposed be to be Answered by the Rule of Proportion, Direct or Indirect.

Having stated the three Numbers given as is formerly directed, calling the middle Number the mean, and the two outermost Numbers, the extreams: Consider from the Nature of the Question, whether the third Number requires more or less than the second Number; if it requires more, the lesser Extream is to be your Divisor; but if the Third require less, the greater Extream is your Divisor: Now so often as this lesser, and the greater Extream happeneth to be the third Number; so often is your Proportion Indirect, but when they are the first Number, the Proportion is Direct; an Example or two will make it plain.

EX-

EXAMPLE 1.

If a Board is 9 Inches broad, how much in length will make a ſquare Foot, ſay, if 12 Inches broad require 12 in length, to make a ſquare Foot, what length will 9 Inches broad require: It will require more length, becauſe there is leſs breadth: See the Work.

In. br.	*long.*	*In. br.*
12 :	12 :	9
	12	

9) 144 (16 Inches in length for Anſwer.
54
0

EXAMPLE 2.

How many Yards of Silk 3 Quarters broad, will line 9 Yards of broad Cloath, that is 2 Yards broad?

Say, if 6 Quarters wide require 9 Yards in length, what will 3 Quarters wide require in length.

Qrs. br.	*Yar. long.*	*Qrs. br.*
6:	9:	3
	6	

3) 54 (18 Yards in length for Anſwer.
24
0

EXAMPLE 3.

If when the price of a Bushel of Wheat is *6 s.* 3 *d.* the Penny-loaf weigheth 9 ℥; what must the Penny-loaf weigh, when the price of a Bushel of the same Wheat is 4*s.* 6 *d.* the Question is thus stated.

```
   s.  d.        ℥.  s.  d.
   6 : 3 :       9 : 4 : 6
  12            12
  ----          ----
  75 Pence      54 Pence your Divisor
   9
54) 675 ( 12 ℥
    ..
    ----.
    135
    ----
    27 ℥ remains
    20 Penny-weight  } Multiply
    ----
54) 540 ( 10 Penny-weight
    ----                          l.  ℥.  p-w.
     0 Remains            Answer  1 : 00 : 10
```

§ 3. *The Double Rule of Direct Proportion.*

In this kind of Proportion there are 5 Numbers given to find a sixth, which sixth will bear such Proportion to the Product made of the fourth and fifth Numbers, as the third Number does to the Product made of the first and second Numbers.

The Rule for stating the five Numbers given; is,

Make that the third Number from the Left-hand, which is of the same Denomination with the Number sought, then place the two Numbers in the first and second Place to the Left-hand, which are conjunctive in the Sence of the Question to the Third, and the other two Numbers in such Order, that the First may be of the same Denomination with the Fourth, and the second of the same with the Fifth; which done,

RULE.

Divide the Product of the 3 next the Right-hand multiplied one in another, by the Product of the two First to the Left-hand, and the Quotient is the sixth Number sought for.

EX-

EXAMPLE.

If 100 *l.* in Twelve Months gain 6 *l.* what will 500 *l.* gain in Eight Months?

L. prin.	*Month.*	*L. int.*	*L. prin.*	*Month.*
100:	12:	6:	500:	8
12			6	
Divisor—1200			3000	
			8	
			1200) 24000 (20 Pound Answer.	
			1 ··1	
			00 Remains	

By the Work you may perceive that 500 *l.* will gain 20 *l.* in 8 Months, at the Rate of 100 Principle, gaining 6 *l.* Interest in 12 Months.

This Question or any other of this Nature may be resolved at two Single Rules of Proportion, thus: If 100 *l.* require 6 *l.* what will 500 *l.* require, the Answer is 30 *l.* Then say, if 12 Months require 30 *l.* what will 8 Months require? the Answer (as before) is 20 *l.*

§ 4. *The Double Rule of Indirect Proportion.*

The Rule for stating your Question.

Place the three first Numbers toward the Left-hand in the same Order you did in the last Section, and for the other Two, place that the Fourth, which is of the same Denomination with your second Number, and consequently the other next the Right-hand: So will your first and last, *Viz.* that required be of one Denomination, your second and fourth of another, and your third and fifth of another. And,

The Rule for performing the Operation; is,

Divide the Product of the first multiplied in the second, and that Product in the fifth, by the Product made of the third and fourth, and the Quotient is the Answer.

EXAMPLE.

What Principle will raise 20*l.* in Eight Months at *6 per Cent. per Annum.*

L.prin.	*Month.*	*L.int.*	*Month.*	*L.int.*
100:	12.	6:	8:	20
12		8		
1200		48=Your Divisor		
20				
L.in.				

48) 24000 (500 Quotient for Answer; which proves the last Operation.

0 Remains

§ 5. The Reason and Demonstration of the Single Rule of Direct Proportion.

At the beginning of this Chapter, it is said, That if 4 Numbers are Geometrically proportional: The Rectangle or Product made of the Means, is equal to that of the two Extreams from *Euclid. lib. 6. prop.* 16. from which I shall prove the Method for finding the fourth Proportional.

EXAMPLE.

Admit 4 is in proportion to 12, as 18 is to a fourth Number unknown, for which put (*u*) they will stand thus:

4: 12:: 18. *u*

1. *i. e.* As 4 is in proportion to 12, so is 18 to the unknown Number; then from the forementioned Proposition.

$4u=216$

2. *i.e.* Four times *u* (which represents the unknown Number) the Product of the first and fourth, is equal to 12 Times 18, *viz.* 216, the Product of the two Means; then it necessarily follows.

3. *i.e.*

$$u = \frac{216}{4}$$

3. *i.e.* That (u) is equal to 216 divided by 4, for if 4 Times (u) is equal to 216, then one Time (u) must be equal to one fourth part of 216: And,

$$\frac{216}{4} = 54$$

4. Since (u) or the unknown Number, is equal to one fourth part of 216, and that $\frac{1}{4}$ part of 216 is equal to 54; therefore u is equal to 54, which is the fourth Number sought; and if you compare the several Steps, you will find the fourth Number to be discovered after the same Method given for finding it, at the beginning of this Chapter; which is by multiplying the second and third Numbers together, and dividing the Product by the First.

Or thus, from this *Axium.*

That the fourth Number containeth the Third; so often as the Second does the First.

Hence $\frac{12}{4} = \frac{u}{18}$ that is $\frac{1}{4}$ of 12 is equal to one 18th of (u)

Now $\frac{12}{4} = 3$ therefore $\frac{u}{18} = 3$

i. e. Twelve divided by 4 is equal to 3, therefore u divided by 18 must be equal to 3.

And if $\frac{u}{18} = 3$ then $3 \times 18 = u$

i.e. If u divided by 18 is equal to 3, then 3 Times 18 must be equal to u, and consequently (u) is equal to 54, for 3 Times 18 is 54, as before. Note (x) signifies multiplied by.

§ 6. *The Demonstration of the Single Rule of Indirect Proportion.*

By the Definition of this Rule in Section the second foregoing: the Product of the first and second Numbers, is equal to that of the Third and Fourth; from whence this Demonstration; for instance, in finding a Number in a Reverse or Indirect Proportion to

$$6 : 9 : 3 : u.$$

Therefore by the Definition.

$$6 \times 9 = 3 \times u, \text{ or}$$
$$54 = 3u$$

i.e.

i. e. The Rectangle of the two first Numbers 6 by 9, is equal to that of u by 3.

Now if $54 = 3u$, $u = \frac{54}{3}$.

i. e. If 54 is equal to three Times (u) then it follows that one Time (u) is equal to one third part of 54:

$\frac{54}{3} = 18$ Therefore
$u = 18$

i. e. One third of 54 being 18, therefore u is equal to 18, which was required; so the Definition is cleared.

By the same Rules may the Double Rules of Proportion be demonstrated; but this Book being chiefly designed for the Practice of young Merchants; my designed Brevity requireth, that I pass forward to what is more practical.

§ 7. *The Proof of the Rules of Proportion.*

Every kind of Proportion I have discoursed of, may have the Operations proved two Ways.

CASE 1.

Single Direct Proportion.

When four Numbers are in Direct Proportion, the Product made of the First and Fourth, is equal to that of the Second and Third; otherwise the Work is not rightly performed.

2*dly*, The second Way is thus: As the fourth Number is to the Third, so is the Second to the First; otherwise the Work is not right.

CASE 2.

Single Indirect Proportion.

When four Numbers are in an Indirect Proportion; the Rectangle of the First and Second, is equal to that of the Third and Fourth; otherwise there is an Errour in the Work.

2*dly*, Thus: As the First to the Third, so is the fourth Number to the Second in a Direct Proportion; otherwise the Operation is not rightly performed.

CASE

CASE 3.

Double Direct Proportion.

When a ſixth Number is found in a Direct Proportion; the Rectangle of the Firſt, Second and Sixth, is equal to that of the Third, fourth and fifth Numbers, if the Work is not Erroneous.

2*dly*, Thus: As the Product of the fourth and fifth Numbers is to the Sixth; ſo is the Product of the Firſt and Second to the Third, in a Single Direct Proportion.

CASE 4.

Double Indirect Proportion.

When five Numbers are given, and a Sixth found in an Indirect or Reverſe Proportion; the Rectangle (provided the Work is ſtated by the Rules foregoing in the fourth Section of this Chapter) of the Firſt, Second and Fifth, is equal to that of the Third, Fourth and ſixth Numbers, if the Work is rightly performed.

2*dly*, Thus: As the fifth Number is to the Product of the Third and Fourth; ſo is the Sixth to the Product made of the Firſt and Second, by one Single Direct Proportion.

Vulgate

CHAP. the 8th. of FRACTIONS.

Vulgar FRACTIONS.

§ 1. *Notation and Numeration of Vulgar Fractions.*

A Fraction is one or more Parts of Unit or Integer, according as the ſame is divided.

Every Fraction conſiſteth of two Parts, *viz.* a Numerator and a Denominator.

The Denominator is placed (in Writing) below the line you write in, and ſheweth how many Parts the Integer, or Unit is divided into.

The Numerator of a Fraction is (in Writing) placed above the line, and ſheweth how many of the ſaid Parts, expreſſed by the Denominator, are contained in the Fraction: For inſtance,

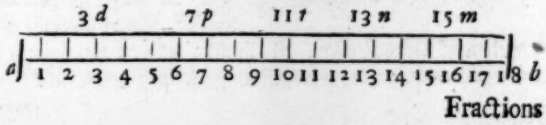
3 Numerator.
4 Denominator.

In reading Fractions the Numerator is firſt mentioned, then the Denominator; as the Fraction above is read, three fourth Parts of any thing: *i e.* The Denominator ſheweth that the Integer is divided into four Parts; and the Numerator, that three of thoſe fourth Parts, are contained in the Fraction: So by the ſame Reaſon

$\frac{1}{4}$ is one fourth Part,
$\frac{1}{2}$ is one half, or two fourth Parts,
$\frac{2}{3}$ is two third Parts,
$\frac{5}{6}$ is 5 ſixth Parts, *&c.* As in the following Table.

One Half, *&c.* is	$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \frac{1}{7}, \frac{1}{8}, \frac{1}{9}, \frac{1}{10}$
Two Thirds, *&c.* is	$\frac{2}{3}, \frac{2}{4}, \frac{2}{5}, \frac{2}{6}, \frac{2}{7}, \frac{2}{8}, \frac{2}{9}, \frac{2}{10}$
Three Fourths, *&c.* is	$\frac{3}{4}, \frac{3}{5}, \frac{3}{6}, \frac{3}{7}, \frac{3}{8}, \frac{3}{9}, \frac{3}{10}$
Four Fifths, *&c.* is	$\frac{4}{5}, \frac{4}{6}, \frac{4}{7}, \frac{4}{8}, \frac{4}{9}, \frac{4}{10}$
Five Sixths, *&c.* is	$\frac{5}{6}, \frac{5}{7}, \frac{5}{8}, \frac{5}{9}, \frac{5}{10}$
Six Sevenths, *&c.* is	$\frac{6}{7}, \frac{6}{8}, \frac{6}{9}, \frac{6}{10}$
Seven Eighths, *&c.* is	$\frac{7}{8}, \frac{7}{9}, \frac{7}{10}$
Eight Ninths, *&c.* is	$\frac{8}{9}, \frac{8}{10}$
And Nine Tenths, is	$\frac{9}{10}$

Or thus; the whole line *a b*, being a Unit, divided into 18 equal Parts; the line *a d* is $\frac{3}{18}$, the line *a p* is $\frac{7}{18}$, the line *a m* $\frac{15}{18}$, &c.



Fractions

Fractions are either proper or improper.

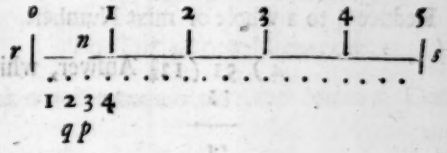
A Fraction properly so called, or a proper Fraction, is when the Numerator is less than the Denominator, as the Fractions foregoing.

An improper Fraction is when the Numerator is greater than the Denominator; as $\frac{7}{4}$, $\frac{28}{20}$, *&c.* Again,

Fractions are either Simple or Compound.

A Simple Fraction is when the Fraction is immediately the Fraction of a Unit or Integer; as those foregoing in the Table, *&c.*

A Compound Fraction is a Fraction of a Fraction, as $\frac{1}{2}$ of $\frac{1}{4}$ of a Pound Sterling, which is equal to 2*s.* 6*d.* or it is when a Unit is divided into any Number of Parts, and each of those Parts are again subdivided into Parts; these last Parts are Compound Fractions, being the Fractions of the Fractions of a Unit. So the whole line (*r s*) being a Unit, the line *r* 1, is $\frac{1}{5}$, *r* 2 is $\frac{2}{5}$, because the Unit is divided into five Parts; which five Parts being subdivided into four Parts, as under the line: I say, each of these last parts are Fractions of a fifth part; so the line *r q* is $\frac{1}{2}$ of $\frac{1}{5}$ of the line *r s*; the line *r p* is $\frac{3}{4}$ of $\frac{1}{5}$ of it, *&c.*



§ 2. *Reduction of Vulgar Fractions.*

It may seem strange to some, that Reduction is here taught before Addition, *&c.* but 'tis necessary it should be so, because Reduction is made use of in all the subsequent Rules, to fit and prepare Fractions for Addition, Substraction, *&c.*

CASE 1.

When a mixt Number is given to be reduced to an improper Fraction.

RULE.

Multiply the Integers by the Denominator of the Fraction, and to the Product add the Numerator, and place the Summ over the Denominator for a new Fraction.

EXAMPLE.

Reduce $12\frac{3}{4}$ to an improper Fraction; see the Marginal Operation.

$12\frac{3}{4}$

$\frac{51}{4}$ Answer

CASE 2.

When an improper Fraction is given to be reduced to a whole or mixt Number.

RULE.

Divide the Numerator of the Fraction by the Denominator, and the Quotient is a whole Number; and if any thing remain it must be placed over the Divisor.

EXAMPLE.

Reduce $\frac{51}{4}$ to a whole or mixt Number.

4) 51 ($12\frac{3}{4}$ Answer, which proves the last Case.

11

3 Remains

CASE 3.

When Fractions have different Denominators, and are to be reduced to a common Denominator.

RULE.

Multiply the Numerator of each Fraction singly, into all the Denominators of the Fractions given, excepting its own, and the Product is a new Numerator; and if you multiply all the Denominators one in another, the Product is a common Denominator.

EX-

EXAMPLE.

Reduce $\frac{2}{3}$, $\frac{3}{4}$ and $\frac{5}{7}$ to a common Denominator.

2 The first Numerator.
4 The 2*d* Denominator.

8 Product. } Mult.
7 The 3*d* Denom. }

56 The first new Numerator.

3 The Numerat. of the 2*d*.
3 The Denom. of the 1*st*.

9 The Product.
7 The Denom. of the 3*d*.

63 The 2*d* new Numerator.

3 } Multiply
4 }

12 } Multiply
7 }

} Denominators.

84 The common Denominator.

Lastly,

5 The Numerat. of the 3*d*. } Mult.
4 The Denom. of the 2*d*. }

20 The Product. } Mult.
3 The Demom. of the 1*st*. }

60 The 3*d* new Numerator.

Now if you place each new Numerator over the common Denominator, you will have

$\left.\begin{matrix}\frac{56}{84}\\ \frac{63}{84}\\ \frac{60}{84}\end{matrix}\right\}$ Equivalent to $\left\{\begin{matrix}\frac{2}{3} & \text{The first Fraction given.}\\ \frac{3}{4} & \text{The second Fraction.}\\ \frac{5}{7} & \text{The third Fraction.}\end{matrix}\right.$

CASE 4.

To reduce a Fraction into its lowest Term.

RULE.

Take $\frac{1}{2}$, $\frac{1}{3}$, or $\frac{1}{4}$, *&c.* of the Numerator and Denominator.

EXAMPLE.

Reduce $\frac{56}{84}$ to its lowest Terms:

Say half of 56 is 28, and $\frac{1}{2}$ of 84 is 42, then $\frac{1}{2}$, 28 is 14, and $\frac{1}{2}$ 42 is 21; and because you cannot take half $\frac{14}{21}$, make trial if you can take $\frac{1}{3}$, *&c.* but since you can onely take $\frac{1}{7}$ of both; say the Sevens in 14 is 2, and the 7 in 21 is 3: So is the given Fraction equivalent to $\frac{2}{3}$, and proves the first Fraction in the last Case to be right: See the Work.

Take $\frac{1}{3}$	or	Take $\frac{1}{3}$	or	Take $\frac{1}{7}$	or	Lowest Term.

There are other Rules for the performing this, but none so proper for the young Merchant's Practice.

CASE 5.

To reduce a Compound Fraction to a Simple one, equivalent to the Compound.

RULE.

Multiply all the Numerators one in another, for the Numerator of the Answer, and the Denominators one in another, for that of the Answer.

EXAMPLE.

Reduce $\frac{1}{4}$ of $\frac{1}{12}$ of $\frac{1}{20}$ into a Simple Fraction.

The Product of the Denominators 4, 12, and 20, is 960, and the Product of 1, 1 and 1 is 1; so the Simple Fraction sought for is $\frac{1}{960}$.

CASE 6.

To find the Value of any Fraction, whether the same be of Coin, Measure or Weight, *&c.*

RULE.

Multiply the Numerator of the Fraction by such a Number of Units of the next Denomination, inferiour to that the Fraction is of, as is equal to a Unit of the Denomination the Fraction is part of, and divide the Product by the Denominator, so the Quotient will answer your Question; but if any thing remain, reduce that to the next lower Denomination, and divide as before.

EX-

EXAMPLE.

What is the Value of $\frac{134}{146}$ of a Hundred Weight? See the Operation.

```
        134 Hundred                  }
          4 Quarters of Hundred      } Multiply
        ---
146) 536 (3 Quarters of Hundred
        ---
         98 Quarters remains         }
         28 Pound in a Quarter       } Multiply
        ----
        784
       196
       ----
146) 2744 (18 Pound
        ..
       ----
       1284
       ----
        116 Pounds remain            }
         16 Ounces in a Pound        } Multiply
        ----
        696
       116
       ----
146) 1856 (12 Ounces
        ..
       ----
        396
       ----
        104 Ounces remains           }
         16 Drams in 1 Ounce         } Multiply
        ----
        624
       104
       ----
146) 1664 (11 Drams, 18/146
        ..
       ----
        204
       ----
         58
```

℞. ℔. ℥. *dr.*

Answer 03: 18: 12: 11 $\frac{18}{146}$

CASE

CASE 7.

To reduce Fractions of a lower Denomination to a higher.

RULE.

Consider what Denomination your Fraction is of, and how many of that make a Unit of the next, *&c.* to the Denomination you would have your Fraction reduced to; then work as in the fifth Case of this Chapter.

EXAMPLE.

Reduce $\frac{1}{5}$ of an Ounce *Averdupoize* into the Fraction of a Hundred Weight,

16 Ounces being 1 Pound; $\frac{1}{5}$ of an Ounce is $\frac{1}{5}$ of $\frac{1}{16}$ of a Pound, then I consider that 28 Pound is a Quarter of a Hundred, and that 4 Quarters is 1 Hundred; therefore $\frac{1}{5}$ of an Ounce is,

$\frac{1}{5}$ of $\frac{1}{16}$ of $\frac{1}{28}$ of $\frac{1}{4}$ of a Hundred; which by the fifth Case foregoing is $\frac{1}{8960}$ of a Hundred.

CASE 8.

If you would reduce a Fraction of a higher to a Fraction of a lower Denomination.

RULE.

Reduce the Numerator of the Fraction into that Denomination you would have your Fraction of, and place it over the Denominator given for a new Fraction.

EXAMPLE.

Reduce $\frac{1}{8960}$ of a Hundred into the Fraction of an Ounce.

$$\left.\begin{array}{r} 112 \text{ Pound} \\ 16 \text{ Ounces} \end{array}\right\} \text{Multiply}$$

$$\begin{array}{r} 672 \\ 112 \\ \hline \end{array}$$

Product 1792 Ounces in the Numerator; so the Answer is $\frac{1792}{8960}$, which Fraction in its lowest Term is $\frac{1}{5}$, and proves the last Case: See the Work.

Take

Take $\frac{1792}{8960}$, Take $\frac{896}{4480}$, Take $\frac{448}{2240}$, Take $\frac{112}{560}$, Take $\frac{56}{280}$, Take $\frac{8}{40}$, $\frac{1}{5}$. Proof, or more brief by dividing the first by 1792.

§ 3. *Addition.*

CASE 1.

When a Simple Fraction is to be added to a Simple.

RULE.

If the Fractions are not in a common Denominator, reduce them to one by the third Case of the last Section; then add the Numerators together, and divide the Summ by one Denominator, and the Quotient is the Summ required, and if any thing remain place it over the Divisor.

EXAMPLE.

To $\frac{2}{3}$ add $\frac{5}{6}$?

The Fractions in a common Denominator are,

$\frac{12}{18}$, $\frac{15}{18}$.

12 The first Numerator
15 The Second

27 The Summ, which divided by 18, is $1\frac{9}{18}$, or $1\frac{1}{2}$ For Answer.

CASE 2.

When a mixt Number is to be added to a Mixt.

RULE.

Work with the Fractional parts as before, and afterward add the Summ of the Fractions to the Summ of the Integers, and you have your Desire.

EXAMPLE.

To $1\frac{1}{2}$ add $74\frac{3}{4}$.

The

The Summ of the Fractions by the last Case is $1\frac{1}{15}$, which added to 1 and 74 makes $76\frac{1}{15}$.

$$\left.\begin{array}{r} 1\frac{1}{15} \\ 1 \\ 74 \end{array}\right\} \text{Add.}$$

$76\frac{1}{15}$ The Summ required.

Or you may perform the Work by reducing the given Numbers to improper Fractions, as in Case 1. of the last Section, and so proceeding, as in the first Case of this Section.

CASE 3.

When a Compound Fraction is to be added to a Simple.

RULE.

Reduce the Compound Fraction to a Simple by the fifth Case of the last Section; then find the Summ by the first Case of this Section.

EXAMPLE.

To $\frac{15}{42}$ add $\frac{3}{8}$ of $\frac{2}{3}$.

The Compound Fractions in a Simple are, $\frac{6}{24}$ or $\frac{1}{4}$.
The common Denominator of $\frac{1}{4}$ and $\frac{15}{42}$ is as followeth:

$$\frac{42}{168} \text{ and } \frac{60}{168}.$$

The Summ of the Numerators is 102, and of the Fractions $\frac{102}{168}$ for Answer.

§ 4. *Substraction.*

CASE 1.

When a Simple Fraction is to be deducted from a Simple.

RULE.

Reduce the Fractions to a common Denominator, as before; then take the Numerator of the Subtrahend from the other, and place the Remainer over the common Denominator, and you have the Difference sought.

EX-

EXAMPLE.

From $\frac{3}{4}$ take $\frac{5}{12}$; See the Work.

36	The first Numerator.	48	The common Denominator.
20	The 2*d* Numerator.		
16	Difference.		Answer $\frac{16}{48}$ or $\frac{1}{3}$.

CASE 2.

When a Compound Fraction is to be deducted from a Simple.

RULE.

Reduce the Compound Fraction to a Simple, by the fifth Case of Section 2. then work as in the last Section.

EXAMPLE.

From $\frac{13}{14}$ take $\frac{2}{3}$ of $\frac{8}{9}$.

The Compound Fraction in a Simple is $\frac{16}{27}$.

13	16	27
27	14	14
91	64	108
26	16	27

351	The 1*st*. Numer.	224	The 2*d*. Numer.	378	The com. Den.
224	Deduct.				
127	Remains.		So the Answer is $\frac{127}{378}$.		

CASE 3.

When a simple Fraction is to be deducted from a whole Number.

RULE.

Deduct the Numerator from the Denominator, and place the Remainer over the Denominator; then deduct 1 from the Integer, and place the Remainer before the remaining Fraction, and you have the Answer.

EXAMPLE.

From 12 take $\frac{5}{8}$. The Answer is $11\frac{3}{8}$.

Or thus:

According to the Rules foregoing, place 1 under the 12, and so proceed as in the first Case of this Section; but the first way is the briefer.

Note that the 1 borrowed from the 12 (in the first Method) is $\frac{8}{8}$, so that if from $\frac{8}{8}$ you take $\frac{5}{8}$ there rests $\frac{3}{8}$.

§ 5. *Multiplication.*

CASE 1.

When you are to multiply a Simple Fraction by a Simple.

RULE.

Multiply all the Numerators one in another, for the Numerator of the Product, and likewise the Denominators for the Denominator of the Product.

EXAMPLE.

Multiply $\frac{1}{3}$ by $\frac{2}{3}$:

Answer $\frac{2}{9}$ or $\frac{1}{3}$.

Note that (contrary to whole Numbers) the Product is less than either of the Factors, and is the same thing as though you divided in whole Numbers; for in the last Example the Product of $\frac{1}{3}$ by $\frac{2}{3}$ is but $\frac{2}{9}$, the same as though you took the half of $\frac{2}{3}$, for half of $\frac{2}{3}$ is $\frac{1}{3}$.

CASE 2.

When you multiply a whole Number by a Fraction.

RULE.

Multiply the Integer by the Numerator of the Fraction, and the Product placed over the Denominator, is the Answer.

EXAMPLE.

Multiply 126 by $\frac{3}{7}$.

Answer $\frac{378}{7}$ or 54, by Case 2. of § 2.

CASE

CASE 3.

When you multiply a Simple by a Compound Fraction.

RULE.

Reduce the Compound Fraction into a Simple, and work as in Case 1. of this Section.

EXAMPLE.

Multiply $\frac{18}{19}$ by $\frac{5}{6}$ of $\frac{3}{7}$.

Answer $\frac{270}{1197}$, or $\frac{15}{133}$.

§ 6. *Division.*

CASE 1.

When you would divide a Simple Fraction by a Simple.

RULE.

Having placed the Dividend and Divisor, as in whole Numbers, multiply the Numerator of the Divisor, in the Denominator of the Dividend, for the Denominator of the Quotient: And the Denominator of the Divisor in the Numerator of the Dividend, for the Numerator of the Quotient.

EXAMPLE.

Divide $\frac{11}{12}$ by $\frac{5}{3}$.

$\frac{5}{3}$) $\frac{11}{12}$ ($\frac{33}{12}$ or $1\frac{5}{4}$.

CASE 2.

When you divide a whole Number by a Fraction.

RULE.

Place a Unit under the whole Number, and work as in the last.

EXAMPLE.

Divide 54 by $\frac{3}{7}$. See the Operation.

$\frac{3}{7}$) $\frac{54}{1}$ ($\frac{378}{3}$, Answer, or 126, which proves the second Case of the last Section.

CASE 3.

When you divide a Simple Fraction by a Compound.

RULE.

Reduce the Compound to a Simple Fraction, and work as in Case the first.

EXAMPLE.

Divide $\frac{30}{133}$ by $\frac{5}{9}$ of $\frac{3}{7}$. The Compound Fraction is $\frac{15}{63}$.

$\frac{15}{63}$) $\frac{30}{133}$ ($\frac{1890}{1995}$ or $\frac{18}{19}$, which proves Case 3. of Sect. 5.

Having in the two last Sections shewed the way of multiplying and dividing Fractions, it would be needless to say any thing of the Golden-Rule, since there is nothing in it but what has been already done; observing onely to multiply and divide by the fractional Way instead of whole Numbers.

§ 7. Reduction of Decimal Fractions.

A Decimal Fraction is onely different from a Vulgar in this: That the Denominator of a Decimal Fraction is either 10, or some power of 10, *viz.* 100, 1000, 10000, *&c.* so that the Denominator is easily known without expressing it; for in a Decimal Fraction there is a Point or Prick toward the Left-hand of the Numerator, which Point always possesses the like place, as the first Figure toward the Left-hand would, if it were to be wrote down: Thus $\frac{1}{10}$ is .1 the Prick being in the Ten's place, and therefore denotes the Denominator to be 10; $\frac{12}{100}$ is .12, $\frac{125}{1000}$ is .125; $\frac{1964}{10000}$ is .1964; $\frac{17}{1000}$ is .017; $\frac{24}{10000}$ is .0024, *&c.* The manner to reduce a Vulgar Fraction to a Decimal, is by this Proportion.

RULE.

As the Denominator of the Vulgar Fraction given,
Is in proportion to its Numerator:
So is 1000,
To the Numerator of the Decimal, whose Denominator is 1000.
Or so is 10000 to the Decimal, whose Denominator is 10000, *&c.*

EX-

EXAMPLE.

What is $\frac{1}{8}$ in a Decimal Fraction? See the Operation.

```
8: 1 :: 1000
          1
        ----
   8) 1000 (.125 Answer.
      ...
      ----
        20
      ----
         40
      ----
          0
```

But because it sometimes happens that a Cypher or more is to possess the 1, 2, *&c.* Places of the Decimal toward the Left-hand; therefore take this General

RULE.

As many Cyphers as you have in the third Number of the 3 in proportion as above, so many Places must you prick off in the Quotient toward the Right-hand.

EXAMPLE 2.

How is 9 *d.* expressed in the Decimal of a Pound Sterling?

RULE.

Consider that in a Pound are 240 Pence; therefore 9 *d.* is $\frac{9}{240}$ *l.* in a Vulgar Fraction by the seventh Case of Section the Second foregoing, for 9 *d.* is $\frac{9}{12}$ of $\frac{1}{20}$ of a Pound.

Then

Then say as in the last Example.

240 : 9 :: 10000

9

l.

240) 90000 (.0375 Answ.

...

.1800

1200

0 Remains

In this Example, because I had 4 Cyphers in the third Number: therefore I must prick 4 places off toward the Right-hand the Quotient for Decimals; but because the said Quotient did but consist of 3 places: Therefore I supply the fourth to the Left-hand with a Cypher.

Note that the greater your third Number is, the nearer do you bring your Decimal to Truth, when any thing happens to remain, as in the Examples following; but in most Cases where the Decimal is not to be multiplied by a great Number, it is sufficient that the fourth Number be 1000.

But when you reduce ¼ or ⅓ or ¾ to Decimals, or any Number of shillings to the Decimal of a Pound, it is sufficient in these Cases if your third Number be 100.

EXAMPLE 3.

How is 3 Farthings wrote in the Decimal Fraction of a Pound Sterling?

Work as you see in the Margent by the Rules given in the last Example, and you will find the Answer to be .00302 or 302 Hundred Thousand Parts of a Pound.

Qrs in a lb. *Qrs*

960 : 3 :: 100000

3

l.

960) 30000 (.00302

..

2000

80 Remains

EX-

EXAMPLE 4.

How is 12 Pounds expressed in the Decimal of 112, or One Hundred?

The Vulgar Fraction by the last Examples is $\frac{12}{112}$ Hundred; therefore the Decimal is .1071, as followeth.

```
112 : 12 :: 10000
            12
        ------
   112 ) 120000 (.1071
         ....
         ------
            800
         ------
            160
         ------
              48 Remains, which is inconsiderable
                 being less than 1/10000 of a Unit.
```

EXAMPLE 5.

How is 13 Shillings in the Decimal of a Pound?

In a Vulgar Fraction 13 *s.* is $\frac{13}{20}$ *l.* and in a Decimal .65 *l.*

```
20 : 13 :: 100
           ------
            13
           ------
     20) 1300 (.65 Answer.
         ..
         ------
            100
         ------
              0 Rem.
```

EXAMPLE 6.

How is 14 *s.* 6 *d.* in the Decimal of a Pound?

In 14 *s.* 6 *d.* are 174 *d.* and the Decimal (by the ſecond Example) is .725 *l.*

240 : 174 :: 1000

```
      174
    ------
240 ) 174000 ( .725 l. Anſwer.
      ------
        600
      ------
       1200
      ------
          0 Remains
```

Note that you may by the Rule following, write down any Number of Shillings in the Decimal of a Pound, without any Proportion.

RULE.

If your Shillings are an even Number, half of them is the Decimal of a Pound; but if they are odd put a Cypher to the Right-hand, and then the half is the Decimal of a Pound.

Thus 14 *s.* is .7 *l.* 16 *s.* is .8 *l.* &c. Likewiſe 13 *s.* or 130 is .65 *l.* 15 *s.* or 150 is .75 *l.* &c.

You may likewiſe write down any Number of Pence or Farthings in the Decimal of a Pound, without working by the foregoing Rules

For if you reduce the given Pence into Farthings, and place a Cypher to the Left hand, you have the Decimal of a Pound required; but if the ſaid Farthings exceed 14: you may add one (for reaſon given in the next Caſe) and another for each 39 Farthings.

Thus 3 *d.* is .012 *l.* 9 *d.* is .037 *l.* 11 *d.* is .046 *l.*

CASE 2.

When it is required to find the Value of any Decimal.

RULE.

RULE.

Multiply the Decimal given, by ſuch a Number of Units of the next inferiour Denomination as make a Unit of that your Decimal is of, and prick from the Right-hand of the Product ſo many places as your Decimal conſiſteth of: So thoſe towards the Left-hand the ſaid Point or Prick are Integers, and thoſe to the Right-hand it, are parts of a Unit of thoſe Integers.

EXAMPLE 1.

What is the Value of .1071 of a Hundred? See the Operation.

.1071	Hundred	Multiply
4	Quarters in a Hundred	
.4284	Quarters of a Hundred	Multiply
28	Pound	
34272		
8568		
l. 11 .9952	Parts of a Pound.	

Note that if you ſuppoſe the Denominator of your Decimal to be 10000, you will find this way of finding the value of a Decimal Fraction to differ nothing from that of Vulgar: Caſe 6. Sect. 2. of this Chapter.

In the laſt Example you ſee that the Value of .1071 Hundred is 11 Pound, and the Parts being another Pound wanting leſs than a Hundred part of a Unit, you may call the Value 12 Pound; which proves the Work in the fourth Caſe of the laſt Section: And

Note that as often as the Decimal (as in the Example laſt preceding) is above .75, in the loweſt Denomination: you may call it a Unit.

EXAMPLE 2.

What is the Value of .747 of a pound *Troy*? See the Work.

```
                .747 Parts of a Pound  } Multiply
                  12 Ounces in a Pound }
               ------
               1494
               747
               ------
Ounces        8.964 Parts of an Ounce  } Multiply
                 20 Penny-weight       }
              -------
Penny-weight 19.280 Parts of a Penny-weight } Multiply
                 24 Grains ---------------}
              -------
               112
               56
              -------
Grains        6.720 Parts of a Grain.
```

So that by the Operation you may perceive that the Value of .747 *l.* is 8 $\frac{7}{3}$. 19 *d-w.* 6 Grains, and about $\frac{3}{4}$ of a Grain.

EXAMPLE 3.

What is the Value of .9184 of a Pound Sterling? Answer, 18 *s.* 4 *d.* 1 *q.*

```
                .9184 Parts of a Pound  } Multiply
                   20 Shillings in a Pound }
              -------
Shillings    18.3680 Parts of a Shilling } Multiply
                   12 Pence in a Shilling }
              -------
               736
              368
              -------
Pence         4.4160 Parts of a Penny  } Multiply
                    4 Farthings -------}
              -------
Farthings     1.6640 Parts of a Farthing.
```

EX-

EXAMPLE 4.

Note that the Value of a Decimal of a Pound, as in the last Example, may be found by inspection, by this

RULE.

Double the Figure standing next the Point in the Decimal given, and if the next Figure toward the Right-hand the aforesaid Figure is 5 or more, add 1 to the Product: Then what Figure stands in the second place above or under 5 reckon so many Tens of Farthings, and what stands in the third place from the prick is so many Farthings, which as often as they are above 13 make less by 1, or above 39 less by 2. So .347 *l.* is 6 *s.* 11¼, *&c.*

The Reason of this Rule.

That place in a Decimal Fraction next the prick is called Primes, being so many Tenth parts of a Pound: Now $\frac{1}{10}$ of a Pound being 2 shillings; therefore whatever Figure possesseth that place must be multiplied by 2.

The reason why you add 1 to the Product as often as the second Figure from the prick is 5, or more, is because .05 of a Pound is 1 shilling, for if .1 *l.* be 2 shillings; then half .1 which is .05 must be 1 shillings.

Lastly, Your reckoning the second and third Places from the prick so many Farthings, supposes 1000 Farthings in a Pound, and there being but 960, that Rule must be something erroneous, but 'tis near enough the Truth for ordinary practice, especially if for the 40 Farthings which the 1000 exceeds the 960, you make this allowance of deducting 1 at every 25; for if 1000 is 40 too much, 500 is 20 too much, 250 is 10 too much, 50 Farthings is 2 Farthings too much, and 25 is 1 Farthing too much: So that your Computation for 13 Farthings is ½ a Farthing too much, and if you deduct a Farthing at all Decimals between 13, and 38 or 39, it may be near enough; for less than 2 Farthing is never receiv'd or paid in English Coin. Thus I hope the Rule is made plain, and by it you will find .750 is 7 Tenths of a Pound, or 14 *s.* and .050 *l.* or 50 Farthings made less by 2 for the Reason aforesaid, is 48 Farthings or 1 Shilling more, which makes 15 *s.* also .194 *l.* is 1 Tenth of a Pound or 2 Shillings, .050 *l.* or 1 Shilling more, which makes 3 *s.* and 44 Farthings (the 9 being 4 above 5) made less by 2, for the Reason aforesaid, is 10½ *d.* So the Value is 3 *s.* 10½ *d.*

 §8. *Ad-*

§ 8. *Addition*

There is no difference between Addition of Decimals, and whole Numbers of one Denomination; obſerving onely to place the Decimals Point under Point, as in the Examples.

Example 1.	*Example* 2.	*Example* 3.
46 .9765 *l.*	.39462	.987
360 .146	.0013	.3642
41 .007	.99	.853
72 .9	.176	.9761
521 .0295 Total	1 .56192 Total	3 .1803 Total.

§ 9. *Subſtraction of Decimals.*

Place the Numbers as in the laſt, and proceed as in Subſtraction of one Denomination.

Example 1.	*Example* 2.	*Example* 3.
From 39 .0049	From 160 .99	From 389 .0
Take 7 .947	Take 94 .8462	Take 0 .346
Rem. 31 .0579	Rem. 66 .1438	Rem. 388 .654

§ 10. *Multiplication of Decimals.*

In this Rule you are to place the Factors, and work as in whole Numbers; but after you have found the Product, obſerve this General

RULE.

As many Decimal places as you have in both the Factors, ſo many places muſt you prick off toward the Right hand of the Product. And if ſo many places happen not to be contained in the ſaid Product, (as it will happen when you multiply 2 Fractions together that are of little value) you are to make up the Number by Cyphers toward the Left-hand the ſaid Product.

Exam-

Example 1.

Multiply 3 .467
By 19 .01

3467
31203
3467

Product 65 .90767

Example 2.

Multiply 36492
By .032

72984
109476

Product 1167 .744

Example 3.

Multiply .13461
By 42

26922
53844

Product 5 .65362

Example 4.

Multiply .1264
By .247

8848
5056
2528

Prod. .0312208

Example 5.

Multiply .01832
By .007

Product .00012824

§ 11. *Division.*

Division is the same with that of whole Numbers, all the difficulty therefore is to know how many Decimal places to prick off toward the Right-hand the Quotient. for which take this

RULE.

Take notice how many Decimal places you have in the Dividend, and how many in the Divisor; and how many the Difference is: So many places must you prick off to the Right-hand of the Quotient: But if so many places are not in the Quotient, as the said Difference; make up the Number by prefixing Cyphers toward the Left-hand.

EX-

EXAMPLE 1.

Divide 12.43210 by 9.465. See the Operation.

```
9.465) .1243210 (1.31
       -------
        29671
       -------
         12760
       -------
Remains 3295
```

Note that in this and most other Examples in Division of Decimals, it will be necessary to place Cyphers toward the Right-hand of the Dividend, and that you may know what Number of Cyphers to put to the Right-hand of any Dividend, observe this

RULE.

Consider how many Decimal places you would have in the Quotient (as 3 is sufficient, if it is not afterward to be multiplied by any thing) and also how many Decimal places you have in your Divisor, and so many as you have in both, make so many Decimal places in the Dividend, by adding Cyphers if need require, as in the Example in the Margent, where 3.46 is divided by 1.47, and because I would have 3 Decimals in the Quotient, and there are 2 in the Divisor; I must make 5 Decimal places in the Dividend.

```
1.47 ) 3.46000 (2.353
       -------
        520
       -------
         790
       -------
         550
       -------
         109 Remains;
```

which being less than 1 Thousandth part of a Unit is not material; so much for Division. The Golden Rule is the same with that in whole Numbers, observing Multiplication and Division of Decimals, as they are already taught.

Mer-

Sect: 3.

Practice

A short way of Casting up all Sorts of Merchandise

The TABLE

	d		£
10	0		½
6	8		⅓
5	0		¼
4	0		⅕
3	4		⅙
2	6		⅛
2	0		1/10
1	8		1/12

[illegible] even pts of £ Sterl.g

			d
6			½
4			⅓
3			¼
2			⅙
1 ½			⅛
1			1/12

[illegible] even pts of a Shilling

	D.		q[rs]
10	0		½
5	0		¼
4	0		⅕
2	2		⅛
2	0		1/10

of a Tun

			£
14			⅛
16			⅐

of a Dwt.

			£
14			¼
8			⅐
7			⅛

of ½ a Dwt.

			£
14			½
7			¼
4			⅐
3 ½			⅛

of ¼ a Dwt.

EXAMPLE I.

t
b
y
y
n
d
r
N
b
3
th
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vi
in
fo
be
alt

Merchants Accompts;

OR,

RULES of PRACTICE.

BEfore you enter upon these Rules following, it is necessary you should have the foregoing Tables of the *Aliquot* parts of Money and Weight well fixed in your mind, and likewise the Table following of the 9 Digits by 12, which will enable you to multiply or divide any Number by 12, as though it were but a Digit.

12 Times	1—12	12 Times	4=48	12 Times	7= 84
	2—24		5=60		8= 96
	3=36		6=72		9=108

As a necessary Introduction to Practice, you are also to learn to divide a Number by any of the 9 Digits or 12, without putting down more Figures than the Number to be divided and the Quotient: For the Rules of Practice being of daily use with the Merchants, ought to be performed with all imaginable Brevity, I shall therefore give the following Examples, to inform the Learner how to take $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, *&c.* of any Number, and then proceed to what I chiefly design in this Section; namely to shew how the Value of any Quantity of Merchandize may be found with most Dispatch.

Admit then you would take half 3164: Say the Two's in 3 is 1 (and the 1 over makes the next 1 Eleven) Two's in 11 is 5, and the 1 over makes the Six 16) Two's in 16 is 8, Two's in 4 is 2; so that the half of 3164 is 1582. Also by the same Rule $\frac{1}{3}$ of 18765 is 6255; $\frac{1}{14}$ of 46723 is 3893 and 7 remains, and $\frac{1}{12}$ of 47632 is 2381, if according to the third Case of the fifth Chapter, you cut off the Figure in Unit's place of the Divided, and take $\frac{1}{2}$ the rest; and in these Cases what remains is always of the same Name with the Dividend.

$\frac{1}{2}$ of 3164
is—1582

$\frac{1}{3}$ of 18765
is—6255

$\frac{1}{14}$ of 46723
is—3893 7 Rem.

$\frac{1}{12}$ of 47632
is—2381 12 Rem.

CASE

CASE 1.

When the Price of a Unit or Integer of a Commodity is one Shilling.

RULE.

Take $\frac{1}{20}$ of the given Number for the Answer.

EXAMPLE.

What is 46743 Pound of Cotton-wool worth at 12 *d.* *per* Pound? See the Operation.

$\frac{1}{20}$ of 46743

is 2337 *l.* 3 *s.* Ans.

CASE 2.

When the Price of any Commodity is 2 Shillings.

RULE.

Take $\frac{1}{10}$ of the given Number, as in the third Example of the third Case of Chapter the Fifth.

19764 at 2 *s.*

1976 *l.* 8 *s.* *Facit.*

EXAMPLE.

What the Price of 19764 Yards at 2 *s.*

Note that what remains is always (as was said before) of the same Denomination with the Dividend, so that in the last Example, 4 remaining is 4 two Shillings, or 8 *s.*

CASE 3.

When the Price of the Unit is any other even Number of Shillings under 20 *s.* Take this

RULE.

Take $\frac{1}{2}$ the Price of the Integer, and by that multiply the Summ given, and the Product is Pounds; only when you multiply the first Figure toward the Right-hand, double the Excess of the Product above Ten or Tens for Shillings, and carry the said Tens to the Pounds, as in the Examples following.

EX-

EXAMPLE 1.

What the Price of 4323 Yards at 6*s.* *per* Yard?

Work as in the Margent.

4323 Yards at 6*s.*

l. 1296: 18*s.* Answer

EXAMPLE 2.

What the Price of 16947 Yards at 8*s* *per* Yard?

In this Example, say, 4 times 7 is 28, twice 8 is 16*s.* and carry 2 Pound, 4 times 4 is 16 and 2 is 18, 8 and carry 1, *&c.*

16947 Yards at 8*s.*

l. 6778: 16*s.* *Facit*

EXAMPLE 3.

What the Price of 7943 Yards of broad Cloath at 18*s.* *per* Yard?

7943 Yards at 18*s.*

7148*l.* 14*s.* *Facit.*

Note that from the Rule in this Case of an even Number of Shillings are excepted 10*s.* and 2*s.* for when the Price of the Unit is 2*s.* work as in the second Case, and if the Price of it is 10*s.* take half the Integers given, because there are twice 10*s.* in a Pound.

EXAMPLE 4.

What the Price of 369 Ells of Holland at 10*s.* *per* Ell?

369 Ells at 10*s.*

184*l.* 10*s.* *Facit.*

CASE 4.

When the given Price of a Unit of any Wares or Commodity, is any odd Number of Shillings under 20.

RULE.

Work for the next even Number of Shillings, that are less than the said odd Number, by the Rules in the last Case; and for the odd Shilling work as in the first Case, and the Summ is the Answer in Pounds.

EXAMPLE 1.

What is the Price of 859 Yards of Muslin at 17 *s.* *per* Yard? See the Margent.

From this last Rule is excepted 5 *s.* for if the Price of the Integer is 5 *s.* take $\frac{1}{4}$ of the given Number, because 5 *s.* is $\frac{1}{4}$ of a Pound.

859 Yards at 17 *s.*

Add { 687 *l.* 4 *s.* at 16 *s.*
42 *l.* 19. at 1 *s.*

730 *l.* 3 *Facit.*

EXAMPLE 2.

What is the Price of 3743 ℔ of Coffee at 5 *s.* *per* Pound?

See the Work in the Margent; where observe that the 3 remaining is 3 five Shillings or 15 *s.*

3743 *l.* at 5 *s.*

935 *l.* 15 *s.* *Facit.*

CASE 5.

When the price of the Integer is 1 *d.* or any other Number of pence, which are the *Aliquot* or even part of a Shilling.

RULE.

Divide the Number given by the said part, and those shillings into pounds by the first Case.

EXAMPLE 1.

At 1 *d.* *per* Pound what cost 9764 ℔?

$\frac{1}{12}$ of 9764 ℔ at 1 *d.*

is 813 *s.* 8 *d.* Rem.

Facit 40 *l.* 13 *s.* 8 *d.*

EXAMPLE 2.

What cost 13147 ℔ of damaged Raisons at 2 *d.* *per* Pound? Ans. 109 *l.* 11 *s.* 2 *d.*

Or take $\frac{1}{120}$ of the given Number by cutting off the Cypher.

$\frac{1}{6}$ of 13147 ℔ at 2 *d.*

is 2191 *s.* 2 *d.* Rem.

Facit 109 *l.* 11 *s.* 2 *d.*

EX-

EXAMPLE 3.

What cost 87341 *l.* of Sugar at 3 *d.* *per* Pound? Ans. 1091 *l.* 15 *s.* 3 *d.*
Or take $\frac{1}{60}$ of the given Number.

$\frac{1}{4}$ of 87341 ℔ at 3 *d.*
is 21835 *s.* 3 *d.* Rem.
Facit 1091 *l.* 15 *s.* 3 *d.*

EXAMPLE 4.

What cost 3097 Pound of Raisons at 4 *d.* *per* Pound? Ans. 51 *l.* 12 *s.* 4 *d.*
Or take $\frac{1}{60}$ of the given Number.
See the Operation of each in the Margent.

$\frac{1}{3}$ of 3097 ℔ at 4 *d.*
is 1032 *s.* 4 *d.* Rem.
Facit 51 *l.* 12 *s.* 4 *d.*

EXAMPLE 5.

What cost 14032 Pound of Sugar at 6 *d.* *per* Pound?
In this last Example of 6 *d.* you need onely to take a fourth part of the given Number, except the Units place which you cut off, and you have the Answer 350 *l.* and the 32 Six-pences that remains are 16 *s.*

$\frac{1}{4}$ of 14032 ℔ at 6 *d.*
Maketh 350 *l.* 16 *s.*

CASE 6.

When the Price of a Unit or Integer of any Commodity is any Number of pence under 12, that are not an even part of a Shilling; as 5 *d.* 7 *d.* 8 *d.* 9 *d.* 10 *d.* or 11 *d.* you are to work as in this and the following Cases.

EXAMPLE.

What cost 34071 Pound of Figgs at 5 *d*?

RULE.

Because 5 *d.* is a sixth part of half a Crown, take $\frac{1}{6}$ and then $\frac{1}{8}$ of the Quotient for pounds; as followeth.

$\frac{1}{6}$ 34071 ℔ at 5 *d.*
$\frac{1}{8}$ 5678: 15 *d.* Remains
Facit 709 *l.* 16 *s.* 3 *d.*

CASE 7.

When the price of the Unit of any thing is 7 *d.*

RULE.

Take first $\frac{1}{80}$ of the given Number, because 80 Three-pences make 1 *l.* then take $\frac{1}{80}$ of the given Number, and add to the $\frac{1}{80}$, and the Summ is the Answer in pounds, for 60 Groats is 1 *l.* See the Work following.

EXAMPLE.

What cost 321 Pound of damaged Cotton at 7 *d.* *per* Pound?

$\frac{1}{80}$ 321 *l.* at 7 *d.*

Add { is 4 *l.* 3 *d.* Remains
and $\frac{1}{80}$ is 5 *l.* 7 *s.* Remains

Facit 9 *l.* 7 *s.* 3 *d.*

Note that the 1 remaining above the first Quotient is 1 Three-pence, and the 21 remaining above the second Quotient is 21 Four-pence (by the Rules foregoing) or 7 *s.* so the Answer is 9 *l.* 7 *s.* 3 *d.*

CASE 8.

When the given price of a Unit or Integer is 8 *d.*

RULE.

Take $\frac{1}{80}$ of the given Number, and put it down twice, and the Summ is the Answer in pounds.

EXAMPLE 1.

What cost 3746 Yards of Ribbon at 8 *d.* *per* Yard?

$\frac{1}{80}$ of 3746 Yards at 8 *d.*

Add { is 62 *l.* 8 *s.* 8 *d.*
62 *l.* 8 : 8

Facit 124 *l.* 1[illegible] : 4

CASE 9.

When the given Price of the Integer is 9 *d.*

RULE.

Take $\frac{1}{40}$ of the given Number, for 6 *d.* and $\frac{1}{80}$ of it for 3 *d.* and the Summ is the Answer in pounds.

EXAMPLE.

What cost 4052 Bushels of Coals at 9 *d. per* Bushel, the Operation followeth.

$\frac{1}{40}$ of 4052 at 9 *d.*

	is 101 : 6 *s.*	Add
$\frac{1}{80}$	is 50 : 13	
l		

Facit 151 *l.* 19

CASE 10.

When the given Price of the Unit or Integer is 10 *d.*

RULE.

Take $\frac{1}{40}$ for 6 *d.* and $\frac{1}{80}$ for 4 *d.* of the Number given, and the Summ is the Answer in pounds.

EXAMPLE.

What cost 3179 Pound of Hopps at 10 *d. per* Pound?

$\frac{1}{40}$ of 3179 at 10 *d.*

	is 79 *l.* 9 *s.* 6 *d.*	Add
$\frac{1}{80}$	is 52 *l.* 19 : 8	
l		

Maketh 132 *l.* 9 : 2

CASE

CASE 11.

When the given Price of the Integer is 11 *d.*

RULE.

From the given Number (supposing it shillings) take $\frac{1}{12}$ thereof, and the remainer is the Answer in shillings; which bring into pounds by Case the first.

EXAMPLE.

What cost 347 Pound of Copper at 11 *d.* *per* Pound?

$\frac{1}{12}$ of 3470 lb at 11 *d.*
is 289 *s.*—2*d.* Deduct

Rem. 3180*s.* 10
1

Facit 159*l.* 00: 10*d.*

CASE 12.

When the given Price of a Unit or Integer is Farthings under 4.

RULE.

Take the *Aliquot* parts of 1 *d.* or 1 *s.* and work for the shillings as before.

EXAMPLE 1.

What cost 19746 Yards of Tape at 1 Farthing *per* Yard?

In this Example take $\frac{1}{4}$ for pence, $\frac{1}{12}$ for shillings, and $\frac{1}{20}$ for pounds.

$\frac{1}{4}$ of 19746 Yards at 1 Farthing

$\frac{1}{12}$ 4936*d.* 2*q.*

$\frac{1}{20}$ 411*s.* 4*d.*
1

Facit 20*l.* 11: $4\frac{1}{2}$

EX-

EXAMPLE 2.

What coſt 47390 Yards of Tape at 2 Farthings *per* Yard?
In this Example take $\frac{1}{2}$ for pence, and proceed as in the laſt.

$\frac{1}{2}$ 47390 Yards at 2 Farthings

$\frac{1}{12}$ 23695 *d.*

1974 *s.* 7 *d.*
1

Facit 98 *l.* 14 : 7

EXAMPLE 3.

What coſt 41038 Yards of Ditto at 3 Farthings *per* Yard?
In this Example, take $\frac{1}{2}$ for 3 Half-pences, $\frac{1}{8}$ of the 3 Half-pences for Shillings, *&c.*

$\frac{1}{2}$ 41038 Yards at 3 Farthings

$\frac{1}{8}$ 20519 Three Half-pences

2544 *s.* $10\frac{1}{2}$ *d.*
1

Facit 127 *l.* 4 : $10\frac{1}{2}$

CASE 13.

When the Price of the Integer is ſhillings and pence.

RULE.

Work for the ſhillings as is before directed, and alſo for the pence as before taught, and the Summ is the Anſwer in pounds.

But if the pence given be an *Aliquot* part of the Shillings given, you may take ſuch part of the Quotient for ſhillings, and the Summ of the Quotient is the Anſwer. Or if the ſhillings and pence together be an *Aliquot* part of a pound; take ſuch part, and you have the Anſwer at the firſt Operation in pounds.

EX-

EXAMPLE 1.

What cost 1914 Ells of Lockram at 1 *s.* 8 *d. per* Ell?

$\frac{1}{12}$ of 1914 Ells at 1 *s.* 8 *d.*

Facit 159 *l.* 10 *s.*

EXAMPLE 2.

What cost 2789 Ells of Bagg-holland at 3 *s.* 4 *d. per* Ell?

$\frac{1}{6}$ 2789 Ells at 3 *s.* 4 *d.*

Facit 464 *l.* 16 *s.* 8 *d.*

Note that the 5 remaining is 5 Three shillings 4 pences.

EXAMPLE 3.

What cost 978 Gross of Buttons at 6 *s.* 8 *d. per* Gross?

$\frac{1}{3}$ of 978 at 6 *s.* 8 *d.*

Facit 326 *l.*

EXAMPLE 4.

What cost 796 Ells of Dowlass at 3 *s.* 10 *d. per* Ell?

Take $\frac{1}{6}$ as in the second Example for 3 *s.* 4 *d.* and $\frac{1}{40}$ for the 6 *d.* and the Summ of the Quotients is the Answer, as followeth.

$\frac{1}{6}$ of 796 Ells at 3 *s.* 10 *d.*

is 132 *l.* 13 *s.* 4 at 3 *s.* 4 *d.*

$\frac{1}{20}$ is 19 *l.* 18 : 0 at 6 *d.*

Facit 152 *l.* 11 : 4 *d.* for Answer.

EXAMPLE 5.

At 17 *s.* 4 *d.* *per* Yard, what cost 394 Yards of broad Cloath?

Take for 17 *s.* as is before taught, and $\frac{1}{20}$ of the given Number for the 4 *d.*

394 at 17 *s.* 4 *d.*

315 *l.* 4 *s.* for 16 *s.*		
19 *l.* 14 for 1 *s.*	Add	
$\frac{1}{20}$ is 6 *l.* 11 : 4 *d.* for 4 *d.*		

Maketh 341 *l.* 9 : 4

EXAMPLE 6.

What cost 1504 Ells of Cambrick at 19 *s.* 9 *d.* *per* Ell?

Take for the 19 *s.* as is taught in shillings *per* Unit, and for the 9 *d.* as is directed in pence *per* Unit.

1504 Ells at 19 *s.* 9 *d.*

1353 *l.* 12 *s.* at 18 *s.*	Add
75 *l.* 4 at 1 *s.*	
37 *l.* 12 at 6 *d.*	
18 *l.* 16 at 3 *d.*	

Facit 1485 *l.* 4 *s.*

Note that in this last Example, after you have done with the shillings; you may take $\frac{1}{3}$ of 75 *l.* 4 *s.* for the 6 *d.* because 6 *d.* is $\frac{1}{2}$ a shilling; and $\frac{1}{3}$ of 37 *l.* 12 *s.* for the 3 *d.* because 3 *d.* is $\frac{1}{2}$ of 6 *d.* which is somewhat more brief.

EXAMPLE 7.

What cost 1904 Ends of Dimity at 14 *s.* 10 *d.* *per* End?

1904 at 14 *s.* 10 *d.*

1332 *l.* 16 *s.* at 14 *s.*	Add
47 *l.* 12 at 6 *d.*	
31 *l.* 14 : 8 at 4 *d.*	

Facit 1412 *l.* 2 *s.* 8 *d.*

EXAMPLE 8.

What cost 1865 Yards of Fustian at 2 *s.* 4 *d.* *per* Yard?

1865 at 2 *s.* 4 *d.*

186 *l.* 10 *s.* at 2 *s.*
31 *l.* 1 : 8 *d.* at 4 *d.* } Add

Facit 217 *l.* 11 : 8

CASE 14.

When the given Price of the Integer is Pence under 12, and Farthings under 4.

RULE.

Work for the Pence as is before taught, and if the Farthings are an even part of the Pence, that you work'd for next before the Farthings, take such part; otherwise work for the Farthings as is taught before at Farthings *per* Unit.

EXAMPLE 1.

What cost 3471 Dozen of Buttons at $3\frac{1}{2}$ *d.*?

$\frac{1}{10}$ of 3471 at $3\frac{1}{2}$ *d.*
1 1

$\frac{1}{2}$ of 43 *l.* 7 *s.* 9 *d.*
is 7 *l.* 4 : $7\frac{1}{2}$ } Add

Facit 50 *l.* 12 : $4\frac{1}{2}$

EXAMPLE 2.

What cost 9761 Pounds of Sugar at $5\frac{1}{4}$ *d.* *per* Pound?

$\frac{1}{10}$ of 9761 lb at $5\frac{1}{4}$ *d.*

is 122 *l.* 00 *s.* 3 *d.* at 3 *d.*
$\frac{2}{10}$ is 81 *l.* 6 *s.* 10 *d.* at 2 *d.*
of which $\frac{1}{8}$ is 10 *l.* 3 *s.* $4\frac{1}{2}$ at 1 *q.* } Add

Facit 213 *l.* 10 *s.* $5\frac{1}{4}$ *d.*

EXAMPLE 3.

What cost 1794 Pounds of Pepper at $3\frac{3}{4}$*d. per* Pound?

$\frac{1}{80}$ of 1794 at $3\frac{3}{4}$*d.*
1 1

is 22*l.* 8*s.* 6*d.* at 3 *d.* } Add
$\frac{1}{4}$ of the last Quote is 5 *l.* 12 : $1\frac{1}{2}$ at 3 *q.* }

Facit 28 *l.* 00 : $7\frac{1}{2}$

CASE 15.

When the Price of the Integer or Unit is Pounds, Shillings, Pence and Farthings.

RULE.

Multiply the given Number by the Pounds, and to the Product add what the same comes to at Shillings, Pence, and Farthings, as is taught before.

EXAMPLE.

What cost 276 Hundred, 2 Quarters of Steel at 2 *l.* 3 *s.* $8\frac{1}{2}$ *d per* Hnndred?

For Answer, first multiply the 276 by 2 *l.* then for 3 *s.* 4 *d.* take $\frac{1}{6}$ of 276; for the 4 *d.* take $\frac{1}{60}$ of it, and for the $\frac{1}{2}$ Penny take $\frac{1}{8}$ of the last Quotient, and for the half Hundred take $\frac{1}{2}$ 2 *l.* 3 *s.* $8\frac{1}{2}$ *d*; which is 1 *l.* 1 *s.* $10\frac{1}{4}$ *d.* and the Summ of these is the Answer. See the Operation.

C. Q.
276 : 2 : At 2 *l.* 3 *s.* $8\frac{1}{2}$ *d.*

552 *l.* at 2 *l.*
46 *l.* at 3 *s.* 4 *d.*
Add 4 *l.* 12 : at 4 *d.*
0 *l.* 11 : 6 *d* at 2 *qrs.* which is $\frac{1}{8}$ of 4 *l.* 12 *s.*
1 *l.* 1 : $10\frac{1}{4}$ for the half Hundred.

Facit 604 *l.* 5 : $4\frac{1}{4}$

§ 2. *Concerning* Tare *and* Trett.

Tare is an Allowance in Merchandize made to the Buyer for the Weight of the Bagg, Cask, Chest, Freal, Hogshead, *&c.* in which any Merchants Goods is put, and is sometimes called *Cloffe*. After this Allowance is deducted from the Gross-weight, (which is the Weight of the Commodity and Cask, Hogs-head, *&c.* together) the Remainer is the Weight of the Commodity only, and is called Nett-weight; the Allowance for *Tare* is various, as you shall see by and by.

Trett is an Allowance made for the Waste that may be mixt with the Commodity, as Dust, Moats, *&c.* which is always 4*l.* at 104, but though the Merchant alloweth this to the Retailer, yet himself is only allowed *Tare* in paying Custom; so that he payeth as well for the Dust as the best of the Commodity.

Note that in such Commodities wherein *Trett* is allowed, the Remainer, after the *Tare* is deducted is called *Suttle*, out of which *Suttle* the Allowance for *Trett* is made and when it is deducted the Remainer is called Nett; but if no Allowance is made for *Trett*, that Weight is called Nett that remaineth after the *Tare* is deducted, as was said before: So that the *Tare* is always deducted from the Gross-weight, and the *Trett* from the *Suttle*; and to shew the best Method for discovering and deducting these Allowances is the Work of this Section, and shall be explained in the Cases following; wherein I shall be as plain as I can, because I do not know any where the same is done already, with that Perspicuity which is necessary.

CASE 1.

When the Allowance is 14*l. per Cent.* (as of Almonds, Figgs, Steel or Hemp) how to compute the Nett-weight.

This Case, as also the rest may be resolved several ways, which after I have given you an Example of, I shall pitch upon that which in my opinion is the briefest.

EXAMPE 1.

What is the Nett-weight of 9C. 2 *Qrs.* 7 ℔ Gross, *Tare* at 14 *l. per Cent.* to be deducted?

The

The First Way.

RULE.

Reduce the given Weight into Pounds, as in the third Example of Case 2. § 2. Chap. 6. as followeth: Then say, as 112 ℔ to 14 its *Tare*, so is the Pounds given to the Answer in *Tare*, which deduct from the Pounds Gross, and the Remainer is Pounds Nett.

C.	Qrs.	℔
9:	2:	7

9
93
96

1071 ℔ Gross

1071 ℔ Gross
Deduct 133 ℔ Tare

Answer 938 ℔ Nett

Gross Tare Gross
112: 14 :: 1071
14

4284
1071

112) 14994 (133 ℔ Tare
...

379
4

434

98 Remains

A Second Way of working the last Question.

Reduce the 2 Quarters 7 Pound into the Decimal of a Hundred, as is taught in Reduction of Decimals; then deduct 14 the *Tare* from

from 112, and the Remainer is 98: So must you multiply 9.563 *C.* by 98, and the Product is Nett pounds required.

9.563 *C.* Gross	} Mult.
98 Nett pounds in 1 *C.*	
76504	
86067	
937.174 Pound Nett as before, wanting only .826 ℔. but this last is nearer the Truth.	

A Third Way of finding the Nett-weight by Practice.

Because 14 ℔ is $\frac{1}{8}$ part of 112: take $\frac{1}{8}$ of the given Number.

$\frac{1}{8}$ of 9 *C.*	2 *Qrs.*	7 ℔ Gross	
is 1:	0:	22 ℔ Tare deduct	
Remains 8:	1:	13 Nett, or 937 ℔	

Note that since in the first Method, 98 remained, which wanted but $\frac{14}{112}$ Pound of a Unit, and consequently the Quotient wanted but so much of 134 Pound Tare; and if the Tare is 134 Pound, the Nett is but 937, as in these two last Examples.

There is a fourth Way of computing the Nett-weight, but 'tis neither so true nor brief as those foregoing. The Method is to reduce the Hundreds, *&c.* into Pounds, and to take 140 for every 1000, but at that rate the Tare in this last Example is 159, which deducted from the Gross-pounds 1071, the Nett is but 921 ℔, which is 16 pounds too little, and what is lost by this Means let those concerned judge. The Method that I shall practice in the following Cases shall be that in the third Example foregoing, it being short, and most Merchant-like; but because some Questions may be performed sooner by the second Method, with the help of a Decimal Table: I shall therefore likewise incert such a Table, and shew its Use by several Examples, after I have given Rules for deducting Tare, according to the Method of Rules of Practice foregoing, by taking the *Aliquot* parts of a Hundred-weight, which is the best, when you have not the Table at hand.

CASE

CASE 2.

When the Allowance for Tare is 4 *l. per Cent.* as for Cotton Wool, Hopps, Feathers, Lambs-wool, or Polish.

RULE.

Take $\frac{1}{7}$ of $\frac{1}{4}$ of the Gross-weight, and you have the Tare, which deduct from the Gross, and the Remainer is the Netr required.

EXAMPLE.

What is the Nett-weight of four Baggs of Cotton, Wool, whose Number and Weight is as followeth.

No	C.	Q.	℔
31	1:	3:	19
35	2:	2:	07
36	3:	0:	14
40	2:	1:	12

Total Gross 9: 3: 24 at 4 *l. per Cent.*

2: 1: 27 is $\frac{1}{4}$, of which take $\frac{1}{7}$.

$\frac{1}{7}$ is 0: 1: 11 The Tare, deduct

Remains 9: 2: 13 Nett

Note that what Hundreds remains in dividing, must be reduced into Quarters of Hundreds, and what Quarters remains must be reduced into Pounds, and then divided; so in taking $\frac{1}{4}$ of 9 Hundred, 1 Hundred remains or 4 Quarters, which added to the 3, is 7 Quarters, $\frac{1}{4}$ of which is 1 Quarter, and 3 remains, or 84 Pound, and the 24 is 108 Pound, $\frac{1}{4}$ of which is 27.

CASE 3.

When the Tare to be allowed is 6 *l. per Cent.*

RULE.

Take $\frac{1}{4}$ of the given Number, and $\frac{1}{7}$ of that fourth for 4 Pound Tare; then to the last Quotient add half it self, and the Summ is the Tare required.

EXAMPLE.

What is the Tare to be allowed for 6 Cask of Lattin or Iron-Wyre, at 6 *l.*

Viz.	*No.*	C.			*No.*	C.	Q.	℔
	1	2:	1:	17	7	2:	1:	12
	2	3:	0:	07	8	3:	1:	06
	4	2:	3:	18	12	2:	0:	10
		8:	1:	14		7:	3:	00
		7:	3:	00				

Total Gross 16 : 0 : 14 at 6 *l. per Cent.*

4 : 0 : 03 is $\frac{1}{4}$

0 : 2 : 08 is $\frac{1}{7}$ of the fourth } Add
0 : 1 : 04 is $\frac{1}{2}$ of the seventh }

Summ 0 : 3 : 12 The Tare, deduct

15 : 1 : 2 Nett remains

CASE 4.

When the Allowance for Tare is 7 *l. per Cent.*

RULE.

Take $\frac{1}{2}$ of 1 Eighth of the given Number for Tare.

EXAMPLE.

What is the Tare of 9 C. 3 *Qrs.* 16 ℔ at 7 *l. per Cent.* See the Work following.

C.	*Qrs.*	℔	
9:	3:	16	at 7 *l.* Tare
1:	0:	26	is $\frac{1}{8}$
Deduct 0:	2:	13	is $\frac{1}{2}$ of $\frac{1}{8}$ being the Tare
Remainer 9:	1:	03	Nett

CASE

CASE 5.

When the Allowance for Tare is 8 *l. per Cent.* as for Copper and Brimstone.

RULE.

Take $\frac{1}{8}$ of a fourth of the given Number, and put it down twice, and the Summ is Tare.

EXAMPLE.

What is the Tare of 3 Fatts of Copper, *viz.*

	No.	*C.*	*Q.*	℔	
	7	3:	00:	17	
	9	2:	03:	04	
	13	3:	02:	01	
Total Gross		9:	01:	22	at 8 ℔ Tare.
		2:	01:	12	is $\frac{1}{4}$.
		0:	01:	09	is $\frac{1}{8}$ of the fourth } Add
		0:	01:	09	is Ditto } Add
		0:	02:	18	Tare, deduct
		8:	03:	04	Nett

CASE 6.

When the Allowance for Tare is 10 Pound *per Cent.*

RULE.

From $\frac{1}{8}$ of the Gross-weight take $\frac{1}{7}$ of $\frac{1}{4}$ of the said Weight, and the Remainer is Tare.

EXAMPLE.

What is the Allowance for 5 Casks of Copperas at 10 Pound *per Cent.* Tare?

Viz.	*No.*	C.	Q.	℔	*No.*	C.	Q.	℔
	4	2:	1:	18	7	3:	1:	14
	5	3:	0:	12	9	2:	2:	12
					10	2:	3:	10
		5:	2:	02				
		8:	3:	08		8:	3:	08

Total Gross 14: 1: 10 at 10 *l. per Cent.* Tare

1: 3: 05 is $\frac{1}{8}$ of the Gross for 14 *l.*

3: 2: 09 is $\frac{1}{4}$ of the Gross for 28 *l.*

0: 2- 01 is $\frac{1}{7}$ of $\frac{1}{4}$ for 4 ℔ deduct from $\frac{1}{8}$

Remains 1: 1: 04 Tare, deduct from the Gross

Remains 13: 0: 06 Nett

Or this Question may be resolved as well, by taking $\frac{2}{7}$ from $\frac{1}{8}$ of the Gross, and the Remainer is Tare.

CASE 7.

When the Allowance for Tare is 12 *l. per Cent.* as of Allom, Salt-petre and Tallow.

RULE.

From $\frac{1}{8}$ of the Gross-weight take $\frac{1}{7}$ of the Eighth, and the Remainer is Tare.

EXAMPLE.

What is the Tare of 15 C. 3 Q. 16 ℔ of Salt-petre at 12 *l. per Cent.*

	C.	Q.	℔
Gross	15	3:	16

at 12 *l. per Cent.*

1: 3: 26 is $\frac{1}{8}$ of the Gross

0: 1: 04 is $\frac{1}{7}$ of the Eighth deduct from the $\frac{1}{8}$

1: 2: 22 Tare required, deduct from the Gross

Remains 14: 0: 22 Nett

CASE

CASE 8.

When the Allowance for Tare is 16 *l. per Cent.*

RULE.

To $\frac{1}{8}$ of the Gross add $\frac{1}{7}$ of the Eighth, and the Summ is the Tare required.

EXAMPLE.

What is the Tare of 10 C. 2 ℊ. 26 ℔ of Currants at 16 *l. per Cent.*

	C.	ℊ	℔	
Gross	10 :	2 :	26	at 16 *l.* Tare.
	1 :	1 :	10	is $\frac{1}{8}$ of the Gross } Add
	0 :	0 :	21	is $\frac{1}{7}$ of the Eighth } Add
Summ	1 :	2 :	03	Tare deduct from the Gross
	9 :	0 :	23	Nett

Thus have I given you Rules for deducting the usual Tares in most Commodities, where 112 ℔ is allowed to the Hundred Weight, which Method I refer to the Learner, as the best, being brief and commendable according to the Rules of Practice; but if the Commodity, or Merchandize be such as is bought and sold by the Pound, and not the Hundred, the Method following is much shorter, provided you use the following Table of the Decimal parts of 112 ℔, by which you will work your Quarters of Hundreds and Pounds, as though they were Hundreds, as shall be shewed by several Examples following the Table.

A TABLE for the speedy finding the Tare, Shewing what Decimal Part of One Hundred any Number of Pounds are.

Qr.	lb.	C.	Qr.	lb.	C.	Qr.	lb.	C.	Qr.	lb.	C.
0	1	.0089	1	0	.25	2	0	.5	3	0	.75
	2	.0178		1	.2589		1	.5089		1	.7589
	3	.0267		2	.2678		2	.5188		2	.7679
	4	.0357		3	.2767		3	.5277		3	.7768
	5	.0446		4	.2857		4	.5367		4	.7857
	6	.0535		5	.2946		5	.5456		5	.7946
	7	.0624		6	.3035		6	.5545		6	.8036
	8	.0714		7	.3124		7	.5634		7	.8125
	9	.0803		8	.3214		8	.5724		8	.8214
	10	.0892		9	.3303		9	.5813		9	.8303
	11	.0982		10	.3392		10	.5902		10	.8393
	12	.1071		11	.3481		11	.5991		11	.8482
	13	.1161		12	.3570		12	.6081		12	.8571
	14	.1250		13	.3660		13	.6170		13	.8660
	15	.1339		14	.3749		14	.6259		14	.8750
	16	.1429		15	.3838		15	.6348		15	.8839
	17	.1518		16	.3927		16	.6438		16	.8928
	18	.1607		17	.4017		17	.6527		17	.9017
	19	.1697		18	.4106		18	.6616		18	.9107
	20	.1786		19	.4195		19	.6705		19	.9196
	21	.1875		20	.4284		20	.6795		20	.9285
	22	.1964		21	.4374		21	.6884		21	.9374
	23	.2054		22	.4463		22	.6973		22	.9464
	24	.2143		23	.4552		23	.7062		23	.9553
	25	.2232		24	.4641		24	.7152		24	.9642
	26	.2321		25	.4731		25	.7241		25	.9731
	27	.2411		26	.4820		26	.7330		26	.9821
				27	.4919		27	.7410		27	.991

The Calculation of this Table.

This is no more than what is taught in Example 4. of Section 7. of Chapter 8. of this Book.

EXAMPLE.

Admit I would know what Decimal part of a Hundred, 2 Quarters 27 Pound is.

In

In 2 Quarters 27 Pound are 83 Pound, or $\frac{83}{112}$ C. which by the Rule in the said seventh Section of Chap. 8. Example 1. is thus reduced to a Decimal.

```
112 : 83 :: 10000
            83
          ------
          C.
112 ) 830000 ( .7410 Answer
      ....
      ------
        460
        ---
        120
        ---
         80
```

By the Work you may see that the 2 Quarters 27 Pound is .7410 C. and is the Tabular Number, answering 2 Quarters 27 Pound; the Use of the Table in Allowance for Tare is as followeth.

The Use of the Table foregoing.

EXAMPLE 1.

What is the Nett-weight of the 4 Baggs of Cotton mentioned in Case 2. of this Section, the Gross-weight of which is 9 Hundred, 3 Quarters 24 Pound?

RULE.

Take the Decimal of 3 Quarters, 24 Pound out of the Table, which is .9642: Then deduct 4 Pound Tare from 112, and the Remainer is 108 Nett pounds in 112 Gross, as was shewed before: Therefore multiply 9.9642 C. by 108, and the Product is Nett-pounds, and parts of a Pound.

```
  9.9642 C.
       108
  --------
   7.97136
  9.9642
  --------
1076.1336 Nett pounds for Answer, which is
          the same as in the said second Case
```

of this Section, as you may prove by reducing that Nett-weight into Pounds.

EX.-

EXAMPLE 2.

Let it be required to find the Nett-weight of the 10 Hundred, 2 Quarters, 26 Pound of Currants mentioned in Case 8. foregoing.

In order to perform which I look in the Decimal Table, what part of 1 Hundred, 2 Quarters and 26 Pound is, and find it .733, and having deducted the 16 Pound Tare from 112, the Remainer is 96, wherefore I multiply 10.733 by 96, and the Product is Nett pounds.

```
10.733 Hundred
    96 Nett-pound in 1 C. } Multiply
-------
 64398
96597
-------
1030.368 Nett-pounds, which is equal to the Pounds
         contained in 9 Hundred, 00 Quarters, 23
```

Pound the Nett-weight of the Currants in the said 8th. Case.

CASE 9.

When the Hundred Weight is 5 Score, how to deduct the Tare at 5 *l. per Cent.*

RULE.

Take $\frac{1}{20}$ of the given Number, and you have the Tare required.

EXAMPLE 3.

What is the Tare of 5 Baggs of Cotton-yarn from Alleppo-weight, 1099 Pound at 5 *l. per Cent.*

```
        lb
$\frac{1}{20}$ of 1099 Gross
        1
      ----
      is 54 Tare, deduct
      ----
      1045 Nett
```

By the various Examples in the Cases foregoing, you may easily know how to make Allowance for Tare at any rate *per Cent.* but in many Commodities the Allowance for Tare is not reckoned *per Cent.* but so much of the Gross, thus;

CASE

CASE 10.

When the Tare of Raw-silk from *Smyrna* or *Cyprus* is to be deducted; the

RULE.

Is to allow 16 Pound Tare for 3 Hundred Weight and upward; from 3 Hundred Weight down to 200 Weight 14 Pound Tare, and from 200 Weight downwards is allowed 12 Pound Tare.

EXAMPLE 1.

What is the Tare of 4 Bails of Raw-silk, Weight 1088 Pound (*Averdupoize*)? Answer 58 Pound.

		℔	℔
No. 1.	*Qt.*	346,	Tare 16
3.		300,	Tare 16
4.		284,	Tare 14
8.		158,	Tare 12
Total Gross		1088	Tare, 58
		58	
Remains ℔ 1030 Nett			

EXAMPLE 2.

Likewise in *Virginia* Tobacco, all Hoggsheads under 3 Hundred Weight allow 70 Pound Tare, from 3 Hundred to 4 Hundred 80 Pound, from 4 Hundred to 5 Hundred 90 Pound, and from 5 Hundred Weight upward 100 Pound Tare.

So in the 6 Hoggsheads following, Weight 27 Hundred, 1 Quarter, 00 Pounds. The Tare is 4 Hundred, 3 Quarters, 8 Pound.

No.

	C.	Q.	℔		C.	Q.	℔
No. 5	2:	3:	4,	Tare	0:	2:	14
6	3:	1:	12,	Fare	0:	2:	24
8	4:	2:	00,	Tare	0:	3:	06
9	5:	1:	12,	Tare	0:	3:	16
10	5:	2:	08,	Tare	0:	3:	16
12	5:	2:	20,	Tare	0:	3:	16
Total Gross	27:	1:	00,	Tare	4:	3:	08
Total Tare	4:	3:	08,	Deduct			
Resteth Nett	22:	0:	20				

It would be needless to give any more Examples of the deducing Tare, since by knowing the usual Tare for any Commodity according to the Custom of any Port: The Learner may by help of the foregoing Rules be able with Speed and Exactness to make any Allowance desired. I shall therefore conclude this Section with one Example of Allowance for Tare and Trett.

CASE 11.

When Allowance is required for Tare and Trett.

RULE.

Find what is to be allowed for Tare according to the Rules foregoing, which having deducted the Remainer (as was said at the beginning of this Section) is Suttle, which reduce into Pounds and divide by 26 (because that is $\frac{1}{4}$ part of 104) and the Quotient is what is to be allowed for Trett, which deduct from the Suttle, and the Remainer is Nett.

EXAMPLE.

What is the Nett-weight of the 4 Puncheons of Pruons following, Allowance being made for 14 Pound at 112 for Tare, and 4 Pound at 104 for Trett?

No.

No.	C.	Q.	℔	No.	C.	Q.	℔
4	2:	1:	17	9.	2:	3:	17
5	1:	3:	20	10.	2:	1:	12
	4:	1:	09		5:	1:	01
					4:	1:	09

Total 9: 2: 10 Groſs at 14 Pound Tare *per Cent.*

⅛ is 1 : 0 : 22 Tare, deduct

Remains 8 : 1 : 16 Suttle

8
84
84

940 Pound Suttle, which divide by 26, and you have
36 Pound Trett, deduct

904 Pound Nett, for Anſwer.

Note that Trett is uſually allowed in the Port of *London* for Cinamon, Cloves, Mace, Tobacco, Cotton, Yarn, and Cotton-wool.

§ 3. *Concerning Bartering.*

Merchants are ſaid to barter when they exchange one Commodity for another, and there is much more difficulty in the Name than the Rule; for that is no other than the Rule of Proportion which has been taught already, as will appear by the Example following.

CASE 1.

When two Merchants barter, and each rateth his Goods ſold in Barter, as though they were ſold for ready Money.

RULE.

Let one Merchant conſider what the Goods he is minded to Barter amounteth to: Then by the Rule of Proportion ſee how much of the other Merchant's Commodity the ſaid amount will buy, and ſo much muſt be given.

EXAMPLE.

A Merchant has 18 Hundred 2 Quarters of Coffee-berries at 14 Pound, 10 Shillings *per Cent.* which he is willing to barter with another Merchant for Lime-juice at 20 Pence the Gallon; how much Lime-juice must the second Merchant give the first for his Coffee-berries?

The Price of the first Merchant's Coffee is thus by Practice.

```
C. Q.   l.   s.
18: 2 at 14: 10 per Cent.
14
------
 72
18
------
252 Pound at 18 l.
  9 l. at 10 s.
  7 l.  5 s. for the half Hundr.
------
```

The Value of the Coffee 268 *l.* 5 *s.*

```
d. Gal.   l.   s.
20: 1 : : 268: 5
            20
          ------
          5365 Shill.
            12
          ------
20 ) 64380 d. ( 3219 Gall. Answer.
1        1
```

By the Work I find that if 20 Pence buy one Gallon of Lime-juice 268 *l.* 5 *s.* or 64380 *d.* will buy 3219 Gallons; and so much must the second Merchant give the first for his Coffee-berries.

CASE 2.

When two Merchants Barter, and the one rateth his Goods above the common Price for ready Money, to know how the other Merchant may advance the Price of his Goods in proportion to the first Merchant, and how to Barter without Loss therebr.

RULE.

RULE.

Consider what the first Merchants Goods are worth *per* Integer in ready Money, and how much he advanceth the Price in Barter; then say, if the Price of a Unit of the first Merchant's Commodity advance so much in Barter (mentioning the Difference between his ready Money and Bartering Prices) how much must the Price of a Unit of the second Merchant's Commodity advance above the ready Money rate in Barter; which having found Work according to the Bartering Prices of each; as in the last Example.

EXAMPLE.

A Merchant hath fifteen Hundred, one Quarter of Alleppo-Gauls, which he valueth at 5 Pound 6 Shillings 8 Pence *per* Hundred ready Money, but in Barter he will have 5 Pound 10 Shillings *per* Hundred; another Merchant hath Jambee-pepper at 14 Pence the Pound ready Money; how much Pepper must the second give the first for his Gauls advancing his Price in Barter proportionably? Answer, $1394\frac{66}{231}$ Pound of Pepper. See the Operation.

```
  l.  s.  d.      s.  d.   d.
  5 : 6 : 8 :     3 : 4 :: 14
 20              12        40
 ---             --        --
106 Shill.     d. 40     d. 560
 12                          4
 ----                      ----
1280 d.          1280)  2240 Qrs. ( 1 96/128 or 1 3/4 Qrs.
                    1      1
                                96
```

Here you see that if 5 *l.* 6 *s.* 8 *d.* (or 1280 *d*) advance 3 *s.* 4 *d.* in Barter; then 14 *d.* must advance $1\frac{3}{4}$ Farthing. So that now the Gauls being 5 *l.* 10 *s.* or 1320 *d.* *per* Hundred; the Pepper is to be reckoned 14 *d.* $1\frac{3}{4}$ *q.* *per* Pound.

Then find the Value of the Gauls by adding the Pence in 3 *s.* 4 *d.* to the foregoing 1280 *d.* which maketh 1320 *d.* by which multiply 15 Hundred 1 Quarter (or 15 25, the Decimal of 1 Quarter being .25) and the Product is the Value of the Gauls in Pence, then find the Answer to the Question by the following Proportion, *viz.*

if 14 *d.* $1\frac{3}{4}$ *qrs.* buy 1 Pound of Pepper; how many will 20130 *d.* buy?

d.	*q.*	℔	*d.*		
14:	$1\frac{3}{4}$:	1 ::	20130:		15.25 *C.*
4				4 Farthings	1320 *d. per C.*
$57\frac{3}{4}$ *qrs.*			80520 Farth.		3050
					4575
					1525
					20130.00 *d.*

Or $\frac{231}{4}$ *qr.* By the First Case of Reduction of Vulgar Fractions.

Then by Division of Vulgar Fractions

$\frac{231}{4}$) $\frac{80520}{1}$ ($\frac{322080}{231}$ Answer.

Which by the second Case of Reduction of Vulgar Fractions is $1394\frac{66}{231}$ Pound of Pepper, and so much must be given for the Gauls.

§ 4. *Exchange of Coin.*

This is also a kind of Barter; though 'tis not called by that Name, and is a Rule by which Merchants know what Summ in English Coin will answer any Summ of Foreign Coin, paid by their Factor or Correspondent.

The English Exchange with all other Nations [Pence] for Crowns, Ducatts, Pieces of Eight, *&c.* except with some part of the *Netherlands*, they Exchange in Pounds Sterling.

Because the Exchange of Coin dependeth on the knowledge of the Value of Coin: I shall therefore first shew you the Value of English Coin, and then of Foreign.

English Gold is reckoned as fine as any Foreign, being $\frac{22}{24}$ *l.* fine; *i. e.* The Pound *Troy* being divided into 24 Equal parts called *Carats*; 22 of those parts is fine Gold, and 2 *Carats* is Silver or Copper allay, according to the Standard of *England*.

As to the Value of English Gold, the Pound *Troy*, or 12 ℥, is divided into $44\frac{1}{2}$ parts, each part is in Value 20 Shillings, called a *Guinea*.

A TA-

A TABLE of the Gold Currant in *England*, with the Value Extrinsick and Currant, as also the Weight, take as followeth.

Names of Pieces.	*Weight.*			*Extrinsick Value.*			*Currant Value.*		
Crown-Gold.	℥	dw.	gr.	l.	s.	d.	l.	s.	d.
THE Mill'd 5 *l.* Piece	1:	06:	$23\frac{1}{3}$	5:	00:	0	5:	10:	10
The Double *Guinea.*	0:	10:	$18\frac{2}{3}$	2:	00:	0	2:	04:	4
The *Guinea.*	0:	05:	$09\frac{3}{4}$	1:	00:	0	1:	02:	2
The $\frac{1}{2}$ *Guinea.*	0:	02:	$16\frac{7}{16}$	0:	10:	0	0:	11:	1
The Trebble broad Piece.	0:	17:	06	3:	00:	0	3:	10:	6
The *Jacobus* 22 *s.* Piece.	0:	06:	06	1:	02:	0	1:	05:	6
The *Carolus* and *Jacobus* 20 *s.*	0:	05:	18	1:	00:	0	1:	03:	6

The half *Jacobus* 22 *s.* Piece, and the $\frac{1}{2}$ *Carolus* or *Jacobus* 20 *s.* Pieces; as also the Quarters are in Proportion for Weight and Value to the whole.

Angel-Gold.

The *Rose Nobles* are of different Weight from 9 *d-w.* 18 Grains, to 8 *d-w.* 6 Grains, and worth 4 *l.* 10 *s. per* Ounce.

Soveraign-Gold.

The 20 *s.* Pieces of *Henry* VIII. is worth about 3 *l.* 10 *s. per* Ounce, of which there are few Currant now.

	℥.	*d-w.*	*gr.*	*l.*	*s.*	*d.*	*l.*	*s.*	*d.*
The French *Pistoll.* ——	00:	04:	08	00:	17:	6	00:	17:	06

The Double French *Pistoll*, or $\frac{1}{2}$ the *Pistoll* is in proportion to the *Pistoll.*

	℥.	*d-w.*	*gr.*	*l.*	*s.*	*d.*	*l.*	*s.*	*d.*
The Spanish *Pistoll,* ——	00:	04:	08	00:	17:	6	00:	17:	06

And in Proportion the Double, Quadruple, or $\frac{1}{2}$ *Pistoll.*

English Silver called *Sterling* or *Esterling* (as some say, from the People that first Coined it in the Time of *Richard* I. who were sent for from the Easterly part of *Germany)* is 11 ℥. 2 *p-w.* fine, and 18 *p-w.* of Allay, which maketh 12 ℥. of *Sterling* Silver, and is the Standard for it.

A Pound or 12 ℥. of Bullion is worth 62 *s.* But because Silver is not Currant by weight in *England*, as in other Countries; I shall

shall onely here insert the Extrinsick Value, or Value as the same is by Stamp made Currant.

Pieces.	*Value.* s. d.		s. d.
The Penny New and Old	00 : 01	The old & new Shill.	1 or 12 *q.*
The 2 *d.* new & old	00 : 02	The old $13\frac{1}{3}$ *d.* Piece	1 : 01 : 2
The 3 *d.* new & old	00 : 03	The half $13\frac{1}{3}$ *d.*	0 : 06 : 3
The new & old Groat	00 : 04 *q.*	The quarter $13\frac{1}{3}$ *d.*	0 : 03 : $1\frac{1}{2}$
The old 4 Pence $\frac{1}{2}$ *d.*	00 : 04 : 2	The old & new $\frac{1}{2}$ Crow.	2 : 06
The old & new 6 *d.*	00 : 06	The old & new Crown	5 : 00
The old Nine-pence	00 : 09		

There is likewise Currant a Farthing made (now) of Copper, which is $\frac{1}{4}$ of a Penny.

Note that the Gold or Silver which I call [Mill'd or New] was all Coined since the Restauration of King *Charles* II. it being before that Time stamped with Hammers.

A TABLE of Foreign Coin, in *Sterling* Silver.

Of the Low-Country Coin.	*Sterling.* l. s. d.	
1 Stiver is	00 : 00 : $01\frac{1}{3}$	
6 Stivers, or 1 *s.* Flemish	00 : 00 : $07\frac{1}{3}$	
33 *s.* $\frac{1}{3}$ Flemish is	01 : 00 : 00	*d.*
1 Gilder is	00 : 02 : 00 or	24
1 Emden Dollar	00 : 02 : $03\frac{3}{3}$ or	$27\frac{3}{3}$
1 Zealand or com. Dollar	00 : 03 : 00 or	36
1 Campen Dollar	00 : 02 : $07\frac{1}{3}$ or	$31\frac{1}{5}$
1 Lyon Dollar	00 : 04 : 00 or	48
1 Duccatoon	00 : 06 : $03\frac{3}{3}$ or	$75\frac{3}{3}$
1 Specie Dollar	00 : 05 : 00 or	60

French Coin.	*Sterling.* s. d. q.	
1 Denier is	00 : 00 : $0\frac{3}{10}$	
12 Deniers, or 1 Soulz	00 : 00 : $3\frac{9}{10}$	
20 Soulz or 1 Lievre	01 : 06 : 0 or	18 *d.*
1 Crown de Furnios is 3 Lievres, or	04 : 06 : 0 or	54

At

		Sterling. d.
Italy.	At *Legborn* the Lievre is	9
	Florance the Crown Currant	63
	Naples the Ducatt is	60
	Bergonia the Ducatt is	52
	Venice the Ducatt de Banco is	52
	The Ducatt *Curranto*	40
	The St. *Mark*	34

		Sterling. d.
Spain.	At *Cadiz* the Ducatt is	66¼
	The Piece of Eight is	54
	Valentia the Ducatt is	63
	A Testoon of *Portugall*	15
	Saragosa the Ducatt	66
	Barcelona the Ducatt is	72

		Sterling. d.
Germany	A *Rix* Dollar of the Empire	53¾
	A Gilder of *Norenburg*	85

These Tables are called the *Par* of Exchange, but the Course of Exchange differeth almost every Day from *London* to these Places, according as Money is plenty, or according to the Time allowed for payment of the Money in Exchange.

And as it is necessary for the young Merchant to understand Foreign Coins: So is it also that he be acquainted with Foreign Weights and Measures, for which purpose I have inserted the Tables following: *Viz.*

In

1 English Ell is		And their Pound-weight is at *London*, Averdupoize.
In the *Netherlands*.		
Viz.	*Ells.*	℔
At *Antwerp*	1.6667	1.041
Amsterdam	1.695	1.111
Bridges	1.64	1.02
In *France*, Viz.		
At *Paris*	0.95	1.123
	Aulns.	
Lyons	1.016	0.934
Callais	1.57	0.934
Roven	1.0	1.109
In *Italy*, Viz.	*Braces.*	
At *Venice*	1.96	0.666
Leghorn	2.0	0.75
Millan	2.3	0.7
In *Spain*, Viz.	*Vares.*	
At *Castile*	1.38	
Granada	1.36	
	Canes.	
Barcelona	.713	
Valentia	1.21	

CASE 1.

When it is required to Exchange English for Foreign Coin.

EXAMPLE.

Admit I have received an Accompt from *Cadiz*, that my Factor there hath sold Wares for my Accompt for 1470 Pieces of Eight, the Exchange for each being $54\frac{1}{2}$ *d.* Sterling, what Sterling Money does the said Pieces of Eight amount to? Work thus:

pc. 8.	*d. Ster.*	*pc.* 8.	*l.*	*s.*	*d.*	
1:	54.5::	1470.	333:	16:	3	Sterling
		54.5				
		735				
		588				
		735				
		80115.0 *d.*	*l.* 333:	*s.* 16:	*d.* 3	Ans. or

Or rather thus by Practice.

	s.	*d.*
1470 Pcs. of 8 at 4:		$6\frac{1}{2}$
$\frac{1}{5}$ of 294 *l.* at 4 *s.*		
$\frac{1}{12}$ of 36 *l.* 15 *s.* at 6 *d.*		
is = 3 *l.*	1 *s.*	3 *d.* at $0\frac{1}{4}$ *d.*
333 *l.*	16 *s.*	3 *d.* Summ

But

But for your more eaſe and diſpatch of caſting up Bills of this Nature, I have inſerted the following Table, whoſe uſe comes after the Table.

CASE 2.

When you would convert Foreign Weight or Meaſure into Engliſh.

RULE.

Look in the foregoing Table for the Proportion of the Foreign Weight or Meaſure to the Engliſh, and work by the Rule of Proportion.

EXAMPLE.

In 11465 *Aulns* of *Lyons*, how many Ells Engliſh?

By the Table I find 1.016 *Aulns* is 1 Ell Engliſh; therefore ſay,

Aulns.	*Ell.*	*Aulns.*	
1.016.	1::	11465	(11284.44 Ells Engliſh, Anſwer.

1.016)

1305

289.0

858.0

452.0

456.0

4960

A TABLE Shewing how much Sterling Mo-
Dollars, Ducatts, Pieces of Eight, Flemish-

	48 d.	49 d.	50 d.	51 d.	52 d.	53 d.	54 d.	55 d.	56 d.
1	000.2	000.204	000.208	000.212	000.217	000.221	000.225	000.229	000.233
2	000.4	000.408	000.417	000.425	000.433	000.442	000.45	000.458	000.467
3	000.6	000.612	000.612	000.637	000.65	000.667	000.675	000.687	000.7
4	000.8	000.816	000.833	000.85	000.867	000.883	000.9	000.917	000.933
5	001.0	001.021	001.042	001.062	001.083	001.104	001.125	001.146	001.167
6	001.2	001.225	001.25	001.275	001.3	001.325	001.35	001.375	001.4
7	001.4	001.429	001.458	001.487	001.517	001.546	001.575	001.604	001.633
8	001.6	001.633	001.671	001.7	001.733	001.767	001.8	001.833	001.867
9	001.8	001.837	001.875	001.912	001.95	001.937	002.025	002.062	002.1
10	002.0	002.042	002.083	002.125	002.167	002.208	002.25	002.292	002.333
20	004.0	004.083	004.167	004.25	004.333	004.417	004.5	004.583	004.667
30	006.0	006.125	006.25	006.375	006.5	006.612	006.75	006.875	007.0
40	008.0	008.167	008.333	008.5	008.667	008.833	009.0	009.167	009.333
50	010.0	010.208	010.417	010.625	010.833	011.042	011.25	011.458	011.666
60	012.0	012.25	012.5	012.75	013.0	013.25	013.5	013.75	014.0
70	014.0	014.292	014.583	014.875	015.167	015.458	015.75	016.042	016.333
80	016.0	016.333	016.667	017.000	017.333	017.666	018.0	018.333	018.667
90	018.0	017.375	018.75	019.125	019.5	019.875	020.25	020.625	021.0
100	020.0	020.417	020.833	021.25	021.667	022.083	022.5	022.917	023.333
200	040.0	040.834	041.667	042.5	043.333	044.167	045.0	045.833	046.667
300	060.0	061.25	062.5	063.75	065.0	066.25	067.5	068.75	070.0
400	080.0	081.667	083.333	085.000	086.666	088.333	090.0	091.667	093.333
500	100.0	102.083	104.167	106.25	108.333	110.417	112.5	114.583	116.667
600	120.0	122.5	125.000	127.5	130.0	132.5	135.0	137.5	140.0
700	140.0	142.917	145.833	148.75	151.666	154.583	157.5	160.416	163.333
800	160.0	163.333	166.667	170.0	173.333	176.667	180.0	183.333	186.667
900	180.0	183.75	187.5	191.25	195.0	198.75	202.5	206.25	210.0
1000	200.0	204.167	208.333	212.5	216.666	220.833	225.0	229.167	233.333
2000	400.0	408.334	416.667	425.0	433.333	441.667	450.0	458.333	466.667

ney is contained in any Number of Crowns, pounds, *&c.* from 1 to 2000.

	57 *d.*	58 *d.*	59 *d.*	60 *d.*	33 *s.*	¼ *d.*	⅜ *d.*	⅝ *d.*	⅞ *d.*
1	000.237	000.242	000.246	000.25	000.606	00.001	00.002	00.003	00.004
2	000.475	000.483	000.492	000.5	001.212	00.002	00.003	00.005	00.007
3	000.712	000.725	000.737	000.75	001.818	00.003	00.005	00.008	00.011
4	000.95	000.967	000.983	001.0	002.424	00.004	00.006	00.010	00.014
5	001.187	001.208	001.229	001.25	003.03	00.005	00.008	00.013	00.018
6	001.425	001.45	001.475	001.5	003.636	00.006	00.009	00.015	00.022
7	001.662	001.692	001.721	001.75	004.242	00.007	00.011	00.018	00.025
8	001.9	001.933	001.967	002.0	004.848	00.008	00.012	00.021	00.029
9	002.137	002.175	002.212	002.25	005.454	00.009	00.014	00.024	00.033
10	002.375	002.417	002.458	002.5	006.060	00.010	00.016	00.026	00.035
20	004.75	004.833	004.917	005.0	012.121	00.021	00.031	00.052	00.073
30	007.125	007.25	007.375	007.5	018.181	00.032	00.047	00.078	00.109
40	009.5	009.667	009.833	010.0	024.242	00.042	00.062	00.104	00.146
50	011.875	012.083	012.292	012.5	030.303	00.052	00.078	00.130	00.182
60	014.25	014.5	014.75	015.0	036.364	00.062	00.094	00.156	00.219
70	016.625	016.917	017.208	017.5	042.424	00.073	00.109	00.182	00.251
80	019.0	019.333	019.667	020.0	048.485	00.083	00.125	00.208	00.292
90	021.375	021.75	022.125	022.5	054.545	00.094	00.141	00.234	00.328
100	023.75	024.167	024.583	025.0	060.606	00.104	00.156	00.26	00.365
200	047.5	048.333	049.167	050.0	121.212	00.208	00.312	00.521	00.729
300	071.25	072.5	073.75	075.0	181.818	00.312	00.469	00.781	01.094
400	095.0	096.667	098.333	100.0	242.424	00.417	00.625	01.041	01.458
500	118.75	120.833	122.917	125.0	303.03	00.521	00.781	01.301	01.823
600	142.5	145.0	147.5	150.0	363.636	00.625	00.937	01.561	02.190
700	166.25	169.167	172.083	175.0	424.242	00.729	01.093	01.822	02.552
800	190.0	193.333	196.667	200.0	484.848	00.833	01.249	02.083	02.917
900	213.75	217.5	221.25	225.0	545.455	00.937	01.406	02.344	03.281
1000	237.5	241.667	245.833	250.0	606.060	01.042	01.562	02.604	03.646
2000	475.0	483.333	491.667	500.0	1212.121	02.083	03.125	05.209	07.291

The Construction of the Table foregoing.

The first Column toward the Left-hand is any Number of Crowns, Dollars, Ducats, Pieces of Eight, Flemish-pounds, or any other Denomination of Foreign Coin, whose Value is as expressed at the Head of each Column; the 13 Columns next, shew the Sterling Money of any Summ of Foreign Coin is equal to, at any Rate, from 48 *d.* to 60 *d.* Sterling, for each Piece of Foreign Coin. The 5th. Column from the Right-hand, sheweth how many Pounds Sterling are contained in any Number of Flemish-pounds from 1 to 2000 at the Rate of 33*s.* Flemish for 20*s.* Sterling. The 4 Columns next the Right-hand, shew, the Amount of any Piece of Coin at $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{4}$ or $\frac{3}{4}$ of a Penny *per* Piece, whose Use shall be shewed by and by.

The Calculation of the Table.

Multiply any of the Numbers at the Head of a Column by any of those in the Column next the Left-hand, and the Product is the Tabular Number answering the said two Numbers in Sterling Mony, except the Column of Flemish-pounds, which is thus calculated:

As 33 Shillings Flemish
Is in proportion to 1 Pound Sterling,
So is 20 Shillings Flemish
To .6 06060 *l.* Sterling, which Number being multiplied by any of the Numbers in the Column next the Left-hand, produceth the respective Number in Sterling Money, answerable to the aforesaid Number in the Left-hand Column, supposing them Flemish-pounds.

The Use of the Table in casting up Bills of Exchange.

Admit you would know how much Sterling Money is contained in 1000 Dollars, each 60$\frac{1}{2}$*d.* Sterling?

Look for 1000 in the Column next the Left-hand, and in a right Line toward the Right-hand under 60$\frac{1}{2}$*d.* is 250.0*l.*

Then look under $\frac{1}{2}$ *d.* and you find 1.042, which doubled (for the $\frac{1}{2}$*d.*) is ———————— 2.084 *l.*

The Summ of which is the Answer, which makes Sterling. 252.084 *l.*

Note that if the Summ given of Foreign Coin is 1500, 1820, 2500, *&c.* you may take the Answer out at twice or thrice.

§ 5. *Con-*

§ 5. Concerning Interest of Coin, and equating the Time of Payments.

Interest is either Simple or Compound.

Simple Interest is when the Interest onely of the Principal (or Summ put out to Interest) is consider'd.

Compound Interest is the Interest of the Principal, and Interest due upon that Principal put together; as if I forbear in my Friend's Hand 100 *l.* two Years, and am to receive Interest at 6 *l. per Cent. per Annum*, my hundred Pound at one years End is 106 *l.* and at the second years End, I have the Interest of the Principal, which is 12 *l.* and of the first Years Interest, *viz.* of 6 *l.* which is 7 *s.* 2½*d.* so my 100 *l.* being forborn two Years, brings me in 12 *l.* 7 *s.* 2½*d.* Interest.

The Method of finding the Simple or Compound Interest of any Summ followeth.

CASE 1.

When you would find the Simple Interest of any Summ for 1, 2, 3, 4, *&c.* Years.

RULE.

Make 100 *l.* the first Number in the *Golden-Rule*, the Rate of Interest, or Interest of 100 *l.* the second Number, and the Summ given the third Number, and work as before taught in the Rule of Direct Proportion; and having found the Interest for one Year, multiply it by the Number of Years, and you have the Answer.

EXAMPLE.

What is the Simple Interest of 500 *l.* for three Years, at 6 *l. per Cent.*

100 : 6 :: 500
6

3000 One years Interest } Multiply
3 Years }

190 Pounds, Answer.

EX-

EXAMPLE 2.

What is the Intereſt of 74 *l.* for ſeven Years ſimple Intereſt, being computed at 3 *l. per Cent. per Annum?*

l. *l.* *l.*
100 : 3 :: 74

2.92*l.* 1 Years Intereſt for 74 *l.*
7 Years } Multiply

l. *s.* *d.*
20.44*l.* Anſwer, or 20 : 8 : 9½

CASE 2.

When the Intereſt of any Summ is required for any Time leſs than a Year.

RULE.

Find the Intereſt of the Summ given for a Year; then ſay, if 365 Days require the Intereſt found, what Intereſt will the Days, for which the Intereſt is to be computed require? multiply and divide, and the Quotient is the Anſwer.

EXAMPLE.

What is the Intereſt of 750 *l.* from the Fifth of *June*, to the Firſt of *December* following, at 8 *l. per Cent. per Annum?*

By your *Almanack*, or otherwiſe, you will find between the ſaid Times, 178 Days. And that the Intereſt of 750 *l.* for 1 Year is 60 *l.* therefore ſay, if 365 Days require 60 *l.* what will 178 Days require? multiply and divide for the Anſwer: See the Work.

100 : 8 :: 750
8

l. 60.00 The Intereſt for 365 Days.

Days. *l.* *Days.*
365 : 60 :: 178
60

l. *s.* *d.*
365) 10680.000 (29.260*l.* or 29 : 5 : 2½ Anſwer.

A TA-

A TABLE of Simple Interest at any usual Rate, *Viz.* At 3, 5, 6 or 8 *l. per Cent. per Annum*, from 1 *l.* to 1000 *l.* for one Day, and may likewise serve for any greater Summ, or Number of Days, or Rate of Interest.

	3 *l. per C.*	5 *l. per C.*	6 *l. per C.*	8 *l. per C.*
l.	1 Day.	1 Day.	1 Day.	1 Day.
1	.0000821	.00013698	.00016438	.00021917
2	.0001642	.00027397	.00032876	.00043835
3	.0002463	.00041095	.00049315	.00065753
4	.0003284	.00054794	.00065753	.00087671
5	.0004105	.00068493	.00082191	.00109589
6	.0004926	.00082191	.00098629	.00131506
7	.0005747	.00095890	.00115068	.00153424
8	.0006568	.00109568	.00131506	.00175342
9	.0007389	.00123287	.00147944	.00197260
10	.0008219	.00136986	.00164383	.00219178
20	.0016438	.00273972	.00328766	.00438356
30	.0024657	.00410959	.00493149	.00657534
40	.0032876	.00547942	.00657532	.00876712
50	.0041095	.00685930	.00821915	.01095890
60	.0049314	.00821916	.00986298	.01315068
70	.0057533	.00958902	.01150681	.01334246
80	.0065752	.01095888	.01315064	.01753424
90	.0073971	.01232874	.01479447	.01972602
100	.0082191	.01369863	.01643835	.0219178
200	.0164382	.02739726	.03287670	.0438356
300	.0246573	.04109599	.04931505	.0657534
400	.0328764	.05479462	.06575340	.0876712
500	.0410955	.06849315	.08219175	.1095890
600	.0493146	.08219278	.09863010	.1315068
700	.0575337	.09589141	.11506845	.1534246
800	.0657528	.10959004	.13150680	.1753424
900	.0739719	.12328867	.14794515	.1972602
1000	.082191	.13698630	.16438356	.219178

The Construction and Use of the foregoing Table.

The first Column toward the Left-hand, is the Summ of which you would know the Interest, the second is the Interest of any of those Summs for one Day, at 3 *l. per Cent. per Annum*; the third is the Interest of any of those Summs for one Day, at 5 *l per Cent. per Annum*, the fourth the Interest for the same Time, at 6 *l. per Cent. per Annum*, and the fifth at 8 *l. per Cent. per Annum*, for one Day. The use of which is thus:

Suppose I would know (as in the Example of the second Case foregoing) the Interest of 750 *l.* for 178 Days, at 8 *l. per Cent.*

Look in the Table against 700 *l.* and you will find under 8 *l. per Cent.* .1534246, which is the Interest of 700 *l.* for one Day, at 8 *l. per Cent.* and against 50 *l.* under 8 *l. per Cent.* you'll find .0109589, which is the Interest of 50 *l.* for one Day, at 8 *l. per Cent.* the Summ of which is .1643835, which multiply by the Number of Days your Summ is forborn (which in this Example is 178 Days) and the Product is the Answer; which in the Example aforesaid is 29.260 *l.* or 29 *l.* 5 *s.* 2½ *d.*

EXAMPLE 2.

Suppose I have bought Goods to the Value of 1000 *l.* for which I am to pay at the End of six Months by Contract; but a Week afterward I agree to pay the said Money presently, for which I am to have rebate at 8 *l. per Cent.* how much Money must I pay?

In six Months wanting one Week, are 175 Days; therefore multiply the Number in the Table, against 1000, under 8 *l. per Cent.* viz. .219178 by 175 Days, and the Product is 38.356 *l.* which I am to be abated of my 1000 *l.* and am therefore to pay but 961 *l.* 12 *s.* 10⅓ *d.*

```
 .219178
     175
 -------
 1095890
1534246
219178
 -------
38.356150
```

CASE

CASE 3.

When you would find the Compound Interest of any Summ,

RULE.

Make 100 *l.* the first Number in the Rule of Proportion, 100 *l.* and its Interest for a Year the second Number, and the Summ you would know the Interest of the third Number; then multiply and divide, and the Quotient is the Principal given, and Interest required for one Year; which make the third Number in the Rule of Proportion, continuing the first and second Numbers as before, *&c.* So that for every Year your Money is forborn, you have one Operation in the Rule of Proportion.

EXAMPLE.

What is the Amount of 550 *l.* 10 *s.* for three Years Compound Interest, computed at 6 *l. per Cent. per Annum*? See the Operation.

```
 l.    l.        l.
100 : 106 : : 550.5 :
                 106
              -------
              33030
             5505
            ---------
100 : 106 : : 583.530  The first Years Amount.
                 106
              -------
             350118
            58353
           ----------
100 : 106 : : 618.5418  The second Years Amount.
                 106
              ---------
            37112508
           6185418
          -----------
          655.654308  The Amount for three Years; or 655 l.
                      13 s. 1 d. which is the Answer.
```

There is a much briefer way of finding the Compound Interest, which is done for any Number of Years, at one Operation by Artificial Numbers, called *Logarithms*; but since that kind of Arithmetick falls not within the Subject of this Book, which tends chiefly to accomplish the Young Merchant; and since Compound Interest is seldom either taken or given by great Traders, I shall therefore omit the former, and say no more of the latter.

CASE 4.

When several Summs of Money are due at several Times, and the Debter and Creditor agree to make but one Payment of the Whole, it may be done without Loss to either by this

RULE.

Multiply every Summ of Money by the Time it becometh due, and divide the Summ of the Products by the total Debt, and the Quotient is the true Time, at which the Money ought all to be paid.

EXAMPLE.

Admit I have 1200 *l.* owing me, to be paid at 4 several Payments, *Viz.* 500 *l.* at two Months End, 300 *l.* at six Months, 200 *l.* at ten Months, and 200 *l.* at twelve Months; the Question is, at what Time the whole may be paid at one Payment, without wrong on either Side?

	l.		*Mo.*	*Products.*		
	500	x	2	=1000	Dividend	
Divisor	300	x	6	=1800	7200	*Month.*
1200	200	x	10	=2000		(6=Quotient,
	200	x	12	=2400		or Answer.

By the Work you see the whole Debt ought to be paid at the End of six Months, which is the true Equated Time.

Note that (x) signifieth [multiplied by] and (=) [equal to.]

§ 6. Con-

§ 6. *Concerning Gain and Loſs in the Practice of Merchandize.*

CASE 1.

When Goods are bought at any Rate, and you deſire to know how to retail the ſame, ſo as to gain a certain Summ by the Sail.

RULE.

As the whole Quantity of the Goods bought
Is in proportion to the Total of the Summ given for the Goods, and the Summ propoſed to be gained;
So is any part of the Commodity,
To a fourth Number, for which if you ſell the ſaid Part, you will gain the Summ deſired by Sail of the Whole.

EXAMPLE.

Admit a Druggiſt buyeth 158 Ounces of black Amber-greece for 230 *l.* I demand how he may ſell the ſame (by the Ounce *Troy*) to gain 50 *l.* by the bargain. Say,

℥.	*l.*	℥.	*l.*	*l.*	*s.*	*d.*
158 :)	280 : :	1 : (	1.772 Anſwer, or	1 :	15 :	$5\frac{1}{4}$ *per* Ounce.

280.000
. . . .

1220

1140

340

24

CASE 2.

When you would gain a certain Summ *per Cent.* by the Sail of any Commodity, to know how to ſell the ſame.

RULE.

Conſider what the whole Value of your Goods will gain, at your propoſed Rate *per Cent. per Annum*; then work as in the laſt Caſe.

EXAMPLE.

A Furrier buyeth 2100 ℔ of *New-England* Bever for 700 *l.* 14 *s.* how may he sell the same *per* Pound, to gain at the Rate of 20 *l.* *per Cent. per Annum?*

The Operation is thus performed:

```
 l.    l.        l.
100 : 20 :: 700.7
                20
              ------
              140.140 The proposed Gain by 700 : 14
              700.7—Add
              ------                          l.   s.
℔ Bever.                ℔ Bever.
2100 : )      840.84 ℔ ::   1
  1            840 8400          ( .4004 ℔, or 8 : 0 : 0⅔ per ℔
                 ··1                 but 8 s. will answer your desire,
              ----------             wanting onely 16 s. 9½ d. at
                  84                 the whole.
              ----------
                   0
```

CASE 3.

When Goods are bought at a certain Price, and afterwards sustain Damage, and must therefore be sold at an under Rate, to know how to sell the same to lose a certain Summ.

RULE.

First, find the Value of the Goods at the Rate you gave for them, from which deduct what you are willing to lose, and work the Remainer in Proportion, as in the two last Cases.

EXAMPLE.

An Oylman buyeth of a Merchant 2100 ℔ of *Westphalia* Ham, for which he gives 9 *d.* *per* Pound; but having sustained Damage, he is willing to lose 8 *l.* 15 *s.* by the Sail, at what Price must he sell the same to lose just that Summ?

The

The Value of the Hams by Practice is 78 *l.* 15 *s.*

$\frac{1}{20}$ of 2100 at 9 *d.*

	1	
is =	52 *l.*	10 *s.*
$\frac{1}{10}$ is =	26 *l.*	5
Facit	78 *l.*	15 *s.*

	l.	*s.*
	78:	15
The loss	8 *l.*	15 deduct
2100:	70::	1
1		

2100) 70.000 (.033 *l.* Ans.
.1
70
7

By the Work I find he must sell for 8 *d. per* ℔

The last Question is more briefly resolved thus:

If 2100 *l.* lose 8.75 *l.* what will 1 ℔ lose?

2100) 8.750 (.004 *l.* or 1 *d. per* Pound loss.
1 1
3

So must he sell it for 8 *d. per* ℔ as was taught before.

CASE 4.

When Goods are bought at one Price, and sold for a greater to be paid at Time; to know what you gain by 100 *l.* in a Year at that Rate.

RULE.

Say by the Double Rule of Direct Proportion foregoing.

As the Price your Goods (or any part) cost you, is to the gain by such Goods, or part in the Time you trust the Buyer:

So is 100 *l* in 12 Months to the Summ gained thereby for Answer.

EXAMPLE.

A Merchant bought 17 *C.* 2 *Qrs.* of Logwood at 20 *s.* 6 *d. per* Hundred ready Money, and sold the same to a Dyer for 25 *s. per* Hundred, to be paid at the End of 6 Months; the Question is what he gained at that Rate by 100 *l.* in a Year. See the Work as by the Rule above.

1 Hun-

s.
1 Hundred cost the Merchant 20.5
He sold the same for 25

His gain by 1 Hundred = 4.5 Then say,

s. Mo. s. l. Mo.
If 20.5 : 6 : 4.5 : 100 : 12
6 4.5
123.0 450.0
12
l.
123) 5460.000 (44.390 Answer,
l. s. d.
or 44 : 7 : 9½ *per Cent. per Ann.*
540
480
1110
30

§ 7. *Concerning Fellowship, or Trading in Company.*

CASE 1.

When two or more Merchants make a common Stock, and by Trade gain or lose a certain Summ; to know what each gaineth or loseth in proportion to his share of the common Stock.

RULE.

Divide the whole Loss or Gain by the whole Stock, and multiply the Quotient by each Man's share of the Stock, and the several Products are the respective Gain or Loss of each particular Merchant.

EX.

EXAMPLE.

Three Merchants make a common Stock of 16000 *l.* of which
7000 *l.* was put in by the firſt Merchant,
5000 *l.* by the ſecond; and
4000 *l.* by the third,
and by one Voyage they gain 24000 *l.* what muſt each have in proportion to his ſhare?

```
                    7000
                    5000
                    4000
                    ----   gain.
The whole Stock=16000 ) 24000 ( 1.5
                        l.
                        ----
 l.                     80
7000 The firſt Merch. ſhare.   0
 1.5
-----
10500 0 l. His gain
```

5000 *l.* The 2*d.* Merchant's ſhare of the [Stock.
1.5

7500.0 his gain.

4000 *l.* The 3*d.* Merc. [ſhare.
1.5

6000.0 *l.* his gain.

Anſw. { 1*ſt.* gained 10500 *l.*
2*d.* gained 7500 *l.*
3*d.* gained 6000 *l.*

24000=The Summ, or Total gain for proof.

CASE 2.

When ſeveral Merchants make a common Stock for a certain Time; and at the End thereof make a Dividend, to find each Man's ſhare of the Gain or Loſs according to his ſtock and time.

RULE.

Multiply each Man's ſhare in the Common ſtock, by the Time it continued therein, and proceed with the Products, as with the ſhares in the laſt Caſe.

EX-

EXAMPLE.

Two Merchants make a Common stock for 12 Months; the first put in 2500 *l.* for 8 Months, the second put in 3000 *l.* for 12 Months, at the End whereof they make a Dividend of 1680 Pounds gain; how much of that Gain shall each have in proportion to his stock and time of Continuance.

```
 l.    Mo.   Products.
2500 x  8 = 20000 + .
3000 x 12 = 36000 + .
            ------   Gain divide
   Summ = 56000 )  1680.000 ( .030
            1        ..1
                    ---------
                      00 Remains
```

```
                                   l.
.03 Multiply'd by { 20000 l. } produceth { 600.00 The 1st. gain-
                  { 36000 l. }           {                  [ed.
                                         {1080.00 The 2d. gain-
                                         {--------------    [ed
                                   The total Gain = 1680 for proof.
```

I might have incerted more of these and such like Examples, but one being sufficient to explain a General Rule, I shall proceed to the next Chapter.

I intended here to incert the Custome payable by Merchants for Goods inward and outward; but the Act of Tonage and Poundage being about expiring, and because some Alterations may possibly be made in a New one, I have at present omitted the same, referring the Merchant to the Book of Rates.

Note that it's usual to allow 2 ℔ at every 300 for Draught in weighing Cinnamon, Cloves, Mace, Nutmegs, Mollosses, *Smyrna* Gauls, Tobacco, and Cotton-wool.

CHAP.

CHAP. X.

Treateth of Book-keeping by Debter and Creditor.

HAving in the foregoing Chapters given the young Merchant the Grounds and Reasons of Arithmetick, and Rules for casting up any thing that may occur in his daily business; I come in this Chapter to shew him how to place the same to Accompt; and that I may do it with all the plainness I can, and in as few words, I shall proceed to shew,

§ 1. *The Explanation of this kind of Book-keeping, and the Books requisite to be kept, and their Use.*

The Method of keeping Books by way of Debter and Creditor or (as some call it) after the Italian manner, Is so regular and precise, that at any Time, the Merchant can be resolved what he gaineth or loseth by every particular Person he dealeth with, or Merchandize he dealeth in, and consequently what he is worth to a Farthing. And for your information how these Books are kept, take this

General Rule.

Any thing whatsoever is received either by the Merchant, or any way for his Accompt by his Servants, whether the same be Money or Wares: I say the thing so received for, or upon his Accompt, is in the Ledger (which shall be spoken to by and by) made Debter to the Person received from, or thing for which it is received.

Also every thing whatsoever is delivered from the Merchant upon any Accompt, whether Money or Wares, the thing so delivered by the Merchant, or any way for his Use or Accompt, is in the Ledger made Creditor By the Person to, or thing for which the same is delivered. My meaning in this Rule shall be fully made appear in all the usual Cases of a Merchant's Dealing, after I have shewed the Books necessary for keeping Accompts after this Method, which is done as followeth.

1. The **Waste-Book** is that wherein every thing is entered, whether received or paid, together with the Time when, by the Day of

the Month incerted in the Middle of the Page, with the Year of our Lord; and is of no farther use but onely to remind the Book-keeper, that such and such business is to be posted into the Journal, the Cash being never summed up in this Book, it being several Men's Accompts of Receipts, and Payments placed together promiscuously.

2. The **Journal** is a Book into which every thing is posted out of the Waste-book, which is here to be made Debter or Creditor, and ought to be expressed in a better Stile or Phrase of Speaking more Merchant-like, it being as it were a Preparatory to the Ledger, whereby is shewed what Accompts are to be entred Debter in the Ledger to, or Creditor by other Accompts. In this Book the Day of the Month is also placed in the Middle of the Page, which is never summed up; unless it contain onely one Man's Accompts, for the reason aforesaid.

3. The **Ledger** is the chief Book of Accompts, and that in which all Accompts meet, and are placed Debter on the Left-hand Page, and Creditor on the Right; so that the Folio's on the Right and Left-hand in this Book are numbered alike; because one and the same Accompt is placed on both sides. In this Book the Day of the Month is placed in a narrow Column toward the Left-hand of the Page, and the Name of the Month to the Left-hand the Day. At the Head of each Folio in this Book, is written the Name of the City or place where the Books are kept, with the Year; all which you will see in the Example of these three Books after the several Cases; the Denomination of most of your Accompts to be entered in this Book, are thus ranked and explained.

First place your Accompt of Stock at the beginning of your Ledger, *viz.* Make Stock Debter to what you owe, when you begin to keep your Books, let the Debt be upon what Accompt soever, in these words, on the Left-hand Folio as it lyeth before you.

Stock Debter.

To sundry Accompts as *per* Inventory, so much as the same is; or if you owe onely one Summ, say Stock is Dr. as *per* Inventory to that Summ; and first of all having taken an Inventory of all you are worth in Cash, Wares, or Debts (as you see in the Inventory following) write on the Right-hand Folio the Summ of what you are worth, as appeareth by the particulars in the Inventory, making Stock Creditor in these words.

Per

Per Contra Creditor.

By ſundry Accompts as *per* Inventory, mentioning the Value of all the Caſh, Wares and Debts you have.

The next thing (on the ſame Folio) is the Accompt of Caſh; where note, that before you enter any thing Debter or Creditor in your Ledger you are to look whether you have any thing of the ſame Denomination in your Inventory, which if you have you muſt the firſt thing in the Accompt, make it Debtor to Stock for ſo much as is in the Inventory of that Accompt, as ſuppoſe you have in read y Caſh at the Time of taking your Inventory 2000 *l.* you muſt make, firſt

Caſh Creditor.

To Stock——————————————*l.* 2000 : 00 : 00

And afterward make the ſame Accompt Debter To all Perſons from whom you receive any Money, whether the ſame is in part or in full for Wares ſold, *&c.* but if you ſell for ready Money you muſt make Caſh Debter to the Wares, And the ſaid Perſons of whom you receive, or thing for which you receive Money muſt be made in their own Accompt Creditor by Caſh, according to the General Rule foregoing, and as ſhall be ſhewn in the Caſes following.

Next to the Accompt of Caſh in your Ledger, you may put what Accompt occurs in practice; as the Accompt of Men, Wares, Voyages, *&c.*

If a Perſon buyeth Wares of you, and payeth not ready Money, you are to make ſuch Perſon Debter to ſuch Wares, and the Wares Creditor by ſo much ſold ſuch a Perſon.

When you ſhip off Goods to your Factor to be ſold for your Accompt, you are in this Book to keep an accompt of the Voyage in a place by it ſelf, as you do the reſt, making *Voyage to ſuch a place (mentioning the Port or Place your Factor reſideth at) conſigned to ſuch a Perſon (mentioning your Factor's Name) Debter* To the Goods ſhipped. To Cuſtome, Inſurance, and all other Charges of the ſame, and the contrary Accompts Creditor by Voyage.

When you have advice that the Goods ſhipp'd are ſold, then in ſome one place make *Factor at ſuch a place, my Accompt Currant (which is the Accompt running between your Factor and you concer-*

ning the Goods sent him) *Debter* to Voyage; And the Voyage Creditor By the Accompt Currant, *&c.*

In this Book is also kept the Accompt of Profit and Loss, by it self thus:

Profit and Loss Debter.

To what Money you pay and have nothing for it; as to Rebate of Money paid you before due; To Abatement by Composition, when a Person is insolvent, To Houshold Expences, Servants Wages, *&c.* And,

Per Contra Creditor.

By all the Cash you receive, and deliver nothing for the same; as By Money received with an Apprentice; By Rebate for paying a Summ before due; By Legacy left you by a Friend, and By the Summ you gain by every particular Commodity you deal in, or Person you deal with, By Ships in Company, By Voyages, *&c.*

At the beginning of this Book you are to have an Alphabetical Table of all the Persons Names you deal with, and Commodities you deal in, with the Accompt of Profit and Loss, Voyages, Accompts Currant, or in Company, *&c.* referring to the Folio in the Ledger, where such Accompt standeth.

4. The **Cash-Book** is that wherein you enter all the Money you receive upon any Accompt, on the Left-hand Folio, making Cash-Debter to the thing you receive it for, *&c.* as was said before, and on the Right-hand Folio enter all the Cash you pay, Creditor by the Person you pay it to (mentioning whether it is in full or in part) or thing you pay it for, and place the Day when you receive or pay it, as in the Ledger, and when you see convenient; as once in a Month or oftner, Summ up your Accompt of Cash received and paid, carrying the Summ to the Accompt of Cash in the Ledger, which Accompt, without this Book would swell too bigg, provided you should enter the particulars there.

5. It is necessary you should keep a Book to enter all the Cash in, which you expend in House-keeping, and once in a Month transferr the same to the Debter-side in the Ledger, thus:

Houshold Expences, Debter,

To Cash, so much as you bring from your Book of Houshold-Expences; and Cash-Creditor, by Houshold-Expences, in your Cash-

book.

book. In this Book is likewise proper to enter the Charge of Apparel, Rent of your Dwelling-house, Pocket-Expences, Servants Wages, *&c.*

6. **A Book of Charges of Merchandize,** Wherein you must enter the Charge of Custom, Ware-house Room, Postage of Letters, Porterage, Cartage, Wharfage, *&c.* and once in about a Month make a Summ, and Transferr it into Creditor-side of your Cash-book, making a Referr to the Folio of the Book of Charges of Merchandize.

7. **A Book of Factories or Invoyces,** Which is an Accompt of Goods shipt or sent by you to your Factor, or received from him, *&c.* In this Book, enter the Goods sent or shipt to be sold for your Accompt, with the Value and Time when sent on the Left-hand Folio; and as you receive Advice of their Sale, enter the same on the Right-hand Folio; so may you readily see how the Accompt stands in that particular.

8. Besides these Books, the Merchant ought to have a Book wherein to enter a Copy of all Letters he sendeth or receiveth upon Accompt of Trade also.

9. A Pocket-book to take the Minits of what business you do abroad, for the ease of your Memory, and to avoid Error.

10. A small Book wherein to Enter all Bills of Exchange, the Merchant accepteth with the Summ and Time when payable, and to whom; or if Foreign Bills, the Foreign Coin, Exchange, and what the same is in Sterling-money; and as you pay the same, write [*Paid*] in the Margent against the Bill paid.

11. Lastly, A Book of Receipts, wherein to take all Receipts for Money you pay: Expressing first the Day of the Month, then the Summ received, and for what, or whether in full or in part, and for whose use, which must be Signed by the person receiving.

Thus have I given you an Accompt of all the Books necessary for a Merchant to keep, especially if he is a great Dealer; also the Nature of the Accompt to be inserted in each Book, and the Use thereof. I shall next proceed to give such particular Directions as will inable the Book-keeper to find proper Debtors and Creditors, for most, if not all the Cases he will meet with in the Practice of Merchandize.

§. 2. *Shew-*

§. 2. *Sheweth how to Enter in your Ledger proper Accompts in Domestick Trade.*

Definition. PRoper Accompts in Domestick business is, when the same is wholly managed by the Merchant or his Domestick Servants; as in the Cases following.

Case 1. When Money is received for a Debt.
Rule. [Cash Debtor] To him for whose Accompt it was paid.
The paying Man's Accompt, Creditor, by Cash.

Case 2. When present Money is received for Wares.
Rule. [Cash Debtor] To the Wares sold, the Summ received.
Goods sold Creditor by Cash for the same Summ.

Case 3. When Money is paid for Wares, presently, as soon as bought.
Rule. [Wares bought, Debtor] To Cash for what paid.
Cash Creditor. By Wares bought, in the same Summ.

Case 4. When I pay Money that was due formerly.
Rule. [The Receiver's Accompt] Debtor, To Cash for what paid.
Cash Accompt, Creditor, By the person receiving.

Case 5. When Money is taken at Interest.
Rule. [Cash Debtor] To the Lending-man for the Principal I receive.
[Profit and Loss] Debtor to the Lending-man for the Interest coming due to him.
The Lending-man Creditor By sundry Accompts, referring to the Folio's of Cash, and Profit, and Loss.

Case 6. When Money is lent at Interest.
Rule. [The Borrowing-man] Debtor To sundry Accompts, (referring to the Folio's of Cash, and Profit, and Loss.)
Cash Creditor by the Borrowing-man for the Principal lent.
Profit and Loss Creditor By the Borrowing-man for the Interest.

Case 7. When Interest-money is paid by me, and the Principal continued.
Rule. [Profit and Loss] Debtor to Cash for the Summ paid.
Cash Creditor by Profit and Loss for the same Summ.

Case 8. When Money is received by me for Interest, and the Principal continued.

Rule.

Rule. [Cash Debtor] To Profit and Loss for the Interest received.
Profit and Loss, Creditor, by the paying Man for the same.

Case 9. When I receive Money by Assignation.

Rule. [Cash Debtor] To the Assignor for the Summ received.
The Assignor Creditor By Cash for the same Summ.

Case 10. When I satisfy a Debt by Assignment of another due to me.

Rule. [The Receiver Debtor] To him on whom the Assignment is charged.
He on whom the Assignment is charged Creditor By the Accepter.

Case 11. When I pay Money to any, by my Creditor's Assignation.

Rule. [The Assignor] Debtor To Cash for the Summ paid (mentioning to whom.)
Cash Creditor By the Assignor for the same Summ, mentioning to whom paid, and by whose Assignation.

Case 12. When I receive part of a Debt, and (by Composition) give a Discharge in full.

Rule. [Cash Debtor] To the Payer for the Summ received.
Profit and Loss, Debtor, To him for the Summ I abate by Composition.
The paying Man Creditor By sundry Accompts, referring to the Folio's of Cash, and Profit, and Loss.

Case 13. When Wares are bought upon Time.

Rule. The [Wares bought Debtor] To the Seller for the value of them.
The Seller Creditor By the Wares bought, for the like Summ.

Case 14. When Wares are sold upon Time.

Rule. The [Buyer Debtor] To the Wares sold for their value.
The Wares Creditor By the Buying man for the same Summ.

Case 15. When Wares bought are to be paid for at several Payments.

Rule. The [Wares Debtor] To the Seller for their value, mentioning the several days of Payment in the Journal.
The Seller Creditor By the Wares for the like Summ.

Case 16. When Wares are bought part for Ready-money, and part at time.

Rule

Rule. The [Wares bought Debtor] To sundry accompts, (referring to the Accompt of Cash, and the Seller's Accompt by their Folio's.)

The Selling-man Creditor, By Wares bought so much as is left unpaid; And Cash Creditor By Wares for so much paid Ready-money.

Case 17. When sundry Parcels of Wares are bought for Ready-money.

Rule. The several and [respective Wares] must be made Debtor To Cash for the value it stands me in; and

Cash Creditor by sundry Accompts for the Total value, referring to the several Folio's where the several Wares stand Booked

Case. 18. When several Parcels of VVares are sold for Ready-money.

Rule. [Cash Debtor] To sundry Accompts (referring to the Folio's where the several Wares sold are Entred in the Ledger) for their whole value.

The respective Wares Creditor By Cash.

Case 19. When Wares are sold part for Ready-money, and part at time.

Rule. The [Buyer's Accompt Debtor] To Wares sold for the Summ unpaid.

[Cash Dr.] To the Wares sold for the Summ received in part.

Wares Creditor By sundry Accompts (referring to the Accompts of the Buyer and Cash) for the whole Summ for which the Wares are sold.

Case 20. When Wares are bought at time, and booked, and afterward Ready-money agreed to be paid upon Rebate.

Rule. The [Seller Debtor] To Cash for the Summ paid him (deducting the Rebate.)

Cash Creditor by the Seller for the same Summ.

The [Seller Debtor] To Profit and Loss for the Rebate.

Profit and Loss Creditor By the Seller for the same Summ.

Case 21. When Wares are sold at time and booked, but Money received presently after, for the same, allowing Rebate.

Rule. [Cash Debtor] To the Buyer for the Summ received upon Rebate.

The Buyer Creditor By Cash for the same Summ.

[Profit and Loss] Debtor to the Buyer for the Summ Rebated.

The Buyer Creditor by Profit and Loss for the same Summ.

Case 22.

Case 22. When Wares are bought and part paid Ready-money, part at Time, and the rest by Assignation.

Rule. [Wares Dr.] To sundry Accompts, the whole Value referring to the Folio's of the Seller's Accompt, Cash, and his whose Bill is Assigned.

The Seller Cr. By the Wares for so much as is yet unpaid.

Cash Cr. By the Wares for so much as is paid in Cash.

[Him whose Bill you have Assigned] Cr. By the VVares, so much as the Summ Assigned is.

Case 23. VVhen VVares are sold for part ready Money, part hy Assignation, and the rest at Time.

Rule. [Cash Dr.] To Wares the Summ received in part of the Buyer.

[The Person on whom the Assignment is made] Dr. To VVares, so much as is Assigned.

[The Buyer Dr.] To Wares for the Summ he left unpaid.

Wares Cr. By sundry Accompts referring to the Folio's of Cash, the Person to pay the Money Assigned; and the Buyer.

Case 24. When in Lieu of a Debt you receive Goods, whose Value is more than your Debt, which Surplus is returned in Cash immediately.

Rule. Make [Wares bought] Dr. To sundry Accompts, referring to the Folio of the Payer's Accompt, and that of Cash, in your Ledger.

The Payer's Accompt Cr. By VVares, the Summ paid him by Agreement.

Cash Cr. By Wares for the Surplus paid back.

Case 25. When in Payment of a Debt you sell Goods to your Creditor, whose Value exceeding his Debt, he returneth you the Over-plus.

Rule. The [Buyer Dr.] To Wares for so much as his Debt was.

[Cash Dr.] To Wares for the Over-plus returned.

Wares Cr. By sundry Accompts referring to the Folio's of Cash and the Buyer's Accompt.

Case 26. When Wares are bought in Barter for other Wares.

Rule. The [Wares bought Dr.] To the Wares sold for the Value of the Wares sold.

Wares sold Cr. By Wares bought for the Value of those bought.

Case 27. When Wares are bought part for Wares and part for ready Money.

Rule. [Wares bought] Dr. To sundry Accompts, referring to the Folio's of Wares sold, and Cash.

Wares sold Cr. By the Wares bought for the Value of those sold.

Cash Cr. By Wares bought for the Summ paid in Money.

Case 28. When Wares are sold for part Wares, and part ready Money.

Rule. Make [Wares bought] Dr. To Wares sold for what they Cost.

Cash Dr. To Wares sold for the Summ received.

Wares sold Cr. By sundry Accompts referring to the Folio's of the Wares bought, and Cash.

Case 29. When you pay Money for part of a Ship.

Rule. [Ship] (naming her) Dr. To Cash for the Summ paid, naming the Master, and what part you have bought.

Cash Cr. By the Ship, the Summ paid, mentioning to whom.

§ 3. *Accompts proper in Foreign Trade.*

Definit. PRoper Accompts in Foreign Trade is, when the Merchant sendeth Goods beyond the Sea to some, Correspondent to be sold for his Accompt.

Case 1. When you shipp off Wares.

Rule Make [Voyage to such a place (mentioning the place whither you send them) consigned to your Factor, or Correspondent (mentioning his Name) Dr.] To the Wares shipped for their Value, naming the Ship and Master's Name, VVares Cr. By Voyage To, *&c.*

Case 2. VVhen you would enter Charges of Goods shipp'd off.

Rule. Make [Voyage to the place whither your Ship is bound, Dr.] To Charges of Merchandize for the Summ paid on— (naming the Commodity.)

Charges of Merchandize Cr. By the Voyage for the same Summ.

Case 3. VVhen Money is received upon Insurance.

Rule. Make [Cash Dr.] To Insurance-Reckoning, Expressing what Summ you Insure, to whom, and on what Accompt.

Insurance Accompt Cr. By Cash, *&c.*

Case 4.

Case 4. If the Goods you Insure are lost.

Rule. Make [Insurance—Reckoning] Dr. To the Person to whom you Insured the Summ lost.

The Person to whom you Insured Cr. By Insurance—Reckoning.

Case 5. VVhen you pay Money for Insurance.

Rule. Make [Insurance—Reckoning Dr.] To Cash for the Summ paid (mentioning the Summ Insured to you, by whom, and on what Accompt) and

Cash Cr. By Insurance Accompt, *&c.*

Case 6. If the Goods that are Insured to you are lost.

Rule. Make [The Person that Insured Dr.] To Insurance—Reckoning the Summ Insured, and

Insurance—Reckoning Cr. By the Person that Insured to you.

Case 7. VVhen you Even the Accompt of Insurance.

Rule. If the Summ on the Cr. Side exceed that of the Dr. Make [Insurance—Reckoning Dr.] To Profit and Loss for that Excess. But if the Dr. Side exceed the Cr. Make [Profit and Loss Dr.] To Insurance—Reckoning for that Excess, and in both Cases *per contra Creditor*——

Case 8. VVhen you Receive Advice from your Factor, that Goods formerly consigned to him are sold——

Rule. Make (in some place in your Ledger) [Factor at—(mentioning the Place he liveth at) my Accompt Currant Dr.] To Voyage to such place, for the known Sall in Sterling-Money, being the Nett proceed of VVares, as by his Accompt on the File sold for so much Forreign Coin (mentioning the Exchange) Then make Voyage to such place, consigned to such Person (mentioning your Factor's Name) Cr. By my Factor at such place my Accompt Currant so much Sterling Money as you know by his Accompt, the Foreign Coin of the Nett proceed Amounts to.

Note, That the Nett proceed is when the Charges of Custome, bringing the Goods from on Board into the Warehouse Provision, *&c.* is deducted from the Value the Goods are sold for by a Factor.

Case 9. When VVares are bought upon Time, and shipp'd off before Entry in your Books.

Rule. Make [Voyage to such a place Consigned to such a Person, Dr.] To the Selling-man, naming the Quantity, Price, and other Conditions of buying and shipping off.

The Sellers Cr. By Voyage, *&c.*

Case 10. When Abatement is made by my Factor for Defect in Goods he formerly sold.

Rule. Make [Profit and Loss Dr.] To Factor at—my Accompt Currant (mentioning for what, and the Summ.)
Then make Factor at such a place my Accompt Currant Cr. By such Summ, *&c.*

Case 11. When VVares are bought for Ready-money, and immediately shipped off before Entry.

Rule. Make [Voyage To—Dr.] To Cash for the Value of the Goods shipp'd, mentioning the Names of the Wares, Quantity and Charges, till on Board, *&c.*
Then Cash Cr. By Voyage, *&c.*

Case 12. VVhen you receive the unhappy News of your Goods being cast away.

Rule. Make [Profit and Loss Dr.] To Voyage To such a place, Consigned to such a Person, *&c.*
Then make Voyage Cr. By Profit and Loss for the same Summ, *&c.*

Case 13. When I order my Factor beyond the Sea, to shipp off Goods to another Factor in another place.

Rule. [Voyage to such a place Consigned to my receiving Factor] Dr. To my sending Factor (mentioning their Names) my Accompt Currant so much for such a thing.
Then make my sending Factor (mentioning his Name) at such a place my Accompt Currant Cr. By Voyage to such a place Consigned to my receiving Factor (Naming his Name and Place) for the same Summ.

Case 14. When I receive the Content of a Bill here, and thereupon draw the same on my Factor, to pay to the Order of him that paid me.

Rule. Make [Cash Dr.] to my Factor at such a place my Accompt Currant for so much Sterling received of such a Person for my Bill drawn on Ditto Factor, payable by him to such a Person, at such a Time, so much Foreign Coin, which at so much Exchange makes Sterling so much.
Then make Factor at such a place, my Accompt Currant Cr. By Cash, *&c.*

Case 15. When I receive VVares in Return from my Factor or Correspondent.

Rule.

Rule. Make [Wares received Dr.] To Factor at such a place (who sent the Wares) my Accompt Currant so much as the Wares cost, mentioning what they are, *&c.*
Then Factor at such a place, my Accompt Currant, Cr. By Wares received for their Value, *&c.*

Case 16. When I deliver a Bill here drawn upon my Factor beyond Sea, and receive not the Content till some time after.

Rule. The [Person to whom I deliver my Bill,] Dr. To Factor at such a place, my Accompt Currant in so much Sterling for my Bill of so much Foreign Coin drawn upon such Factor, payable at such a Time, to such a Person, or Order, the Exchange at so much Sterling, for so much Foreign Coin makes Sterling——
Factor at such a place, my Accompt Currant Cr. By the Person to whom I deliver my Bill.

Case 17. When I receive Money presently, which is the Content of a Bill drawn on some Person here by my Factor.

Rule. [Cash Dr.] To Factor at——- (my Accompt Currant) for so much received of such a Person by Bill of Exchange payable at sight, for the Value paid there (*i. e.* beyond Sea by my Factor) to such a Person.
Then Factor at——my Accompt Currant Cr. By Cash, *&c.*

Case 18. When I receive Advice that my Factor at one place has drawn a Bill on my Factor at another place.

Rule. Make [The Drawing Factor my Accompt Currant] Dr. To the paying Factor, my Accompt Currant for so much Foreign Coin drawn by——— payable at such a time to such a Person, so much Foreign Coin, which at such Exchange makes Sterling———
Then make the accepting Factor my Accompt Currant Cr. By the drawing Factor, my Accompt Currant, mentioning both their Names, Summ, *&c.*

§ 3. *Factorage Accompts in Domestick Trade.*

Definit. THese Accompts are when a Trade is managed by the Factor, or his Servants for the Employer, whom the Factor serveth in Commission.

Case 1. When a Factor receives Wares from his Employer.

Rule. In some one place in your Ledger, make [The Accompt of Goods for your Employer,] Dr. to Cash for so much paid Custome, Freight, *&c.* Then

Then make Cash Cr. By Accompt of Goods, *&c.* so much as paid.

Case 2. When Wares received in Commission by a Factor, are sold for Ready-money.

Rule. [Cash Dr.] To Accompt of Goods for the Employer, the Summ received.

Then make Accompt of Goods for the Employer Cr.] By Cash the same Summ.

Case 3. When Commission Wares are sold by the Factor in Barter.

Rule. [Goods bought in Barter] Dr. To Accompt of Goods, for Accompt proper of the Employer for their Value.

[Accompt of Goods for Accompt, *&c.*] Cr. By Wares received the same Summ.

Case 4. When Wares in Commission are sold part for Ready-money and part at time.

Rule. The [Buyer Dr.] To Accompt of Goods for Accompt proper of the Employer, the Summ left unpaid, Cash Dr. To Accompt of Goods, *&c.* for the Summ received.

[Accompt of Goods for Accompt proper of the Employer] Cr. By sundry Accompts for the Total value of the Goods sold, referring to the Folio's of the Accompts of the Buyer, and Cash.

Case 5. When Wares are sent to an Employer in Return with Charges in shipping off.

Rule. Make [Accompt of Wares for Accompt proper of the Owner] (or your Employer naming his Name) his Accompt Currant] Dr. To the Goods shipp'd, naming the Value and Goods, with the Shipps, and Masters Names, *&c.*

Also the same Accompt Dr. To Cash paid for Custome, and other Charges.

Then make Wares shipp'd Cr. By the Employer, his Accompt Currant for the Value.

And Cash Cr. By the same Accompt Currant, for the Charges of shipping off.

Note, That if these Goods shipp'd were bought by Order, and on the Accompt of the Employer with Ready-money, and not entered before in your Ledger.

Make [your Employer (naming his Name) his Accompt Currant Dr.] To Cash for the Value of the Goods, and Charges of shipping off.

And Cash Cr. *per contra.*

Case

Case 6. When a Bill of Exchange is drawn on a Factor by his Employer, payable at time.

Rule. Make [Employer at such a place (as before) his Accompt Currant] Dr. To him to whom the Bill is payable for the Content thereof.

Then make [him Cr. To whom the Bill is payable] (naming his Name) By your Employer his Accompt Currant for the same Summ.

Note that if this Bill had been paid to Order of the Employer by the Factor presently; The Employer's Accompt Currant must be made Dr. To Cash for the Summ paid (naming to whom) And Cash Cr. By the Contrary for Ditto Summ.

And the Entry is the same with this last, when the Factor remits Ready-money to his Employer.

§ 4. *Factorage Accompts in Foreign Trade.*

Definit. THese Accompts are when a Factor cannot carry on the Business of those whom he serves in Commission, without Assistance of Foreign Correspondence, for whose Returns he is accomptable to his Employer.

Case 1. When Goods sent to Sea are Insured by me.

Rule. Make [Voyage to such a place, for such a ones Accompt (the Employer) Consigned to such a Factor Dr.] To Cash (If you paid the Insurance-money presently) And Cash Cr. By Voyage, *&c.*

But if the Insurance-money was not to be paid presently: Then [Voyage To, *&c.*] Dr. To the Insurer.

And the Insurer Cr. By Voyage.

Case 2. When Goods are shipp'd by a Factor by Order of his Employer to his Factor in another Country.

Rule. Make [Voyage to such a place for Accompt of your Employer Consigned to your Factor (naming his Name) Dr.] To [my Employer his Accompt of Wares] for Charges at the Receipt of the Goods.

And To Cash for Charges of shipping.

Then make [*per contra*] Cr. the Accompt of Wares, And Cash.

Case 3. When you receive Advice that the Wares are sold, which were formerly sent to your Factor.

Rule.

Rule. Make [Factor at ſuch a place for Accompt of my Employer] Dr. To Voyage to ſuch place, for *Ditto* Accompt for the Nett proceed as by Advice.

Then make [Voyage to the ſame place for Accompt of my Employer] Cr By Factor at —— for Accompt of my Employer.

Caſe 4. When you are to enter your Proviſion for Wares ſold on a Foreign Accompt.

Rule. Make [Voyage to ſuch a place (where your Factor resideth) for Accompt of my Employer] Dr. To Profit and Loſs, for ſo much as your Proviſion (or Mony for your Employment) amounteth to, as by your Agreement.

Then make [Profit and Loſs Cr.] By Voyage to —— for Accompt of my Employer for the ſame Summ.

Caſe 5. When you receive Advice that your Factor hath made Abatement for Defects in Goods that he formerly ſold.

Rule. Make [Voyage to ſuch a place for Accompt of my Employer] Dr. To Factor at ſuch a place for Accompt of your Employer, ſo much as abated.

Then make [Factor (at ſuch a place) for Accompt of my Employer (at ſuch a place Cr.] By Voyage (To the place your Factor liveth at) for Accompt of my Employer for the ſame Summ.

Note, that when you cloſe the Accompt of Wares ſold by your Factor with his Returns, *&c.* for Accompt of your Employer, you muſt make Voyage to your Factor; for Accompt of your Employer Dr [To your Employer's Accompt Currant] for the Balance thereof. And the Contrary Cr. By Voyage to ſuch a place for Accompt of your Employer, for the ſame Summ.

§ 5. Company Accompts.

Definit. COmpany Accompts is, when a Stock is employed in Common between ſeveral Merchants in the Way of Trade, and each Partner is to have a Share of the Gain, or bear a Share in the Loſs, in Proportion to his Share in the Stock, as is taught in the Rules of Fellowſhip in the laſt Chapter.

Caſe 1. When Goods are bought and paid for by my ſelf, for Company Accompts.

Rule.

Rule. Make [Wares in Company between my Partner and Me (naming our ſeveral Shares of the Stock) Debter] To Caſh for the Value of the Goods, *&c.*

[Caſh Cr.] By Wares in Company between Partner and Me for the ſame Summ.

Then make [my Partner (naming his Name) his Accompt Currant] Dr. To *Ditto* Partner's Accompt by me in Company for his Share of the Stock.

And his Accompt by me in Company Cr. By his Accompt Currant for the ſame Summ.

Note, that if the Goods were bought upon truſt, the Entry is the ſame; if inſtead of [Caſh] you make the Goods Dr. To, the [Seller] and him Cr. by the ſame.

Caſe 2. When I receive my Partner's Share of Caſh for the Goods bought in Company.

Rule. [Caſh Dr.] To my Partner his Accompt Currant for the Summ he paid me.

[His Accompt Currant] Cr. By Caſh for the ſame Summ.

Caſe 3. When you (having the Management of the Accompt in Company) give an Aſſignment To a Cr. upon your Partner, for his Share of Goods bought in Company.

Rule. Make [the Receiver Dr.] To [your Partner his Accompt Currant] for the Summ in the Aſſignment.

And Partner's Accompt Currant Cr. By the Demander for the ſame Summ——

Caſe 4. When I receive Ready-money for Goods ſold in Company.

Rule. Make [Caſh Dr.] To Wares ſold in Company (always naming the Wares) between my Partner and Me (naming his Name, and each of our Shares) for ſuch Goods ſold ſuch a Perſon, ſo much as their Value.

And [Wares in Company between ſuch a one, and me Cr. By Caſh for the ſame Summ.

Then make [Partner's Accompt by me in Company] Dr. To his Accompt Currant for his Share of the Caſh received.

And [Partner's Accompt Currant Cr. By his Accompt by me in Company for the ſame Summ.

Note, if theſe Wares had been ſold at time, the Entry is the ſame, if inſtead of making Caſh Dr. To Wares in Company; you make the Buyer Dr. To the ſame Wares: And [Wares in Company Cr. By the Buyers, *&c.*

Case 5. When Goods are sold in Company, part for Ready-money and part at time.

Rule. Make Cash Dr. To Wares in Company, between my Partner and Me, for the Money received in part.

And the Buy. Dr To the same Ac. for the Money left unpaid: Then make [Wares in Company between my Partner and Me Cr. By sundry Accompts (referring To the Folio's of Cash) and the Buyer's Accompt for the whole Value of the Goods sold.

2*dly.* Make [my Partner's Accompt by me in Company] Dr. To his Accompt Currant, for his Share of the whole Value of the Wares sold.

And my Partner's Accompt Currant Cr. By his Accompt by me in Company for the same Summ.

Case 6. When I bring into Company Wares of my own, that are entred in my Ledger.

Rule. Make [Wares in Company (naming their Names) between my Partner and Me] Dr. To Wares (naming their name again) in the Summ you bring them into Company for, naming for what Quantity.

Then make [Wares (as before, entred in your Ledger) Cr.] By the same Wares in Company between my Partner and Me, for the Quantity brought into Company at such a price.

2*dly.* Make [Partner his Accompt by me in Company Dr.] To my Partner's Accompt Currant for so much Goods brought into Company by me, of which his share of the price is so much.

Then make [Partner his Accompt Currant Cr.] By his Accompt by me in Company for his said Share ——

Case 7. When Wares bought for Company Accompt and Booked, are shipp'd off To be sold for the same Company Accompt.

Rule. Make [Voyage (to the place whither the Shipp is bound, and Factor the Wares are consigned to) in Company between my Partner and Me] Dr. To Goods shipp'd for their Value, To Cash for Charge of Shipping, so much as paid for that.

Then make [Wares in Company between my Partner and Me] Cr. By [Voyage in Company between us] for their Value. And [Cash Cr.] By Charges of Shipping.

2*dly.* Make [my Partner his Accompt Currant Dr.] To his Accompt by me in Company for his Share of the Charge in shipping off. And

Ditto.

Ditto [Partner his Accompt by me in Company] Cr. By his Accompt Currant for the ſame Summ ——

Caſe 8. When Wares are bought on Company Accompt to be paid for at Time, And are ſhipp'd off (and Charges paid) before Entry.

Rule. Make [Voyage (to ſuch a place) in Company between my Partner and Me, Conſigned to our Factor] Dr. To the Selling-man for the Value of the Wares, and To Caſh for the Charges of ſhipping, *&c.*

Then make [the Seller Cr.] By Voyage to ſuch a place, in Company between my Partner and Me, Conſigned to our Factor, for the Value of the Goods ſhipp'd. And

[Caſh Cr.] By Voyage in Company between my Partner and Me, Conſigned to our Factor at ſuch a place, for the Charge till on Board.

2dly, Make [Partner his Accompt Currant] Dr. To *Ditto* Partner's Accompt by me in Company, for his Share of the Value of the Wares, and Charges till on Board.

And [his Accompt by me in Company] Cr. By his Accompt Currant for the ſame Share of the Value and Charges of ſhipping.

Note, That if the Wares bought in this Caſe had been paid for in Ready-money, the Entry would be the ſame, with this Difference onely; That whereas firſt, Voyage in Company, *&c.* is made Dr. To the Seller, and he Cr. By Voyage, *&c.* you muſt make [Voyage in Company, *&c.*] Dr. To Caſh for the Value and Charges, And Caſh Cr. By Voyage, *&c.* for the ſame Summ.

Caſe 9. When I receive Advice that Wares for Company Accompt are ſold by our Factor.

Rule. [Factor at ſuch a place, for Company Accompt between my Partner (ſo much of the Stock) and (ſo much) me, our Accompt Currant Dr.] To Voyge to ſuch a place in Company between my Partner and Me (naming our Shares) Conſigned to *Ditto* Factor for the Nett proceed as by Advice. And

[Voyage to ſuch a place in Company between my Partner and Me (naming our Shares of the Stock) Conſigned to ſuch a Factor] Cr. By Factor at ſuch a place for Company Accompt between my Partner and Me, our Accompt Currant for the ſaid Nett proceed.

Case 10. When I receive Advice that our Factor hath made Abatement for Defect in Goods sold (between my Partner and Me) in Company.

Rule. Make [Voyage to——— in Company between my Partner and Me (naming our Shares always after the Name) Consigned to———(Factor) Dr.]
To *Ditto* Factor for Company Accompt between my Partner and Me, for the Abatement for the Defect.
Then [Factor at such a place for Company Accompt between my Partner and Me, our Accompt Currant] Cr. By Voyage to——— in Company between my Partner and Me, for the same Summ abated.

Case 11. When Money is remitted to me by our Factor, for Wares sold, for Accompt of Company, and by me received.

Rule. Make [Cash Dr.] To Factor at——— for Company Accompt between my Partner and Me, our Accompt Currant, for the Money received by Bill, and
Factor at——— for Company Accompt between my Partner and Me, our Accompt Currant] Cr. By Cash for the same Summ———
Then make [my Partner's Accompt by me in Company Dr.] To *Ditto* Partner's Accompt Currant, for his Share in the Money received. And
[My Partner's Accompt Currant Cr.] By Partner's Accompt by me in Company for the same Summ.

Note, That if this Money had been payable by Bill, at single or double Usance, *&c.* the Entry would differ little, onely instead of making [Cash Dr. To Factor, *&c.*] make his Accompt that Accepteth the Bill, Dr. To Factor at——— *&c.* and *per contra* Cr.

Case 12. When I receive Wares from our Factor, in return for Wares sold, by him for Company Accompt, and pay Charges for Freight, Custom, *&c.* at the Receipt thereof

Rule. Make [Wares received] Dr. To Factor at——— for Company Accompt between my Partner and Me, our Accompt Currant for the Value of the Goods and Charges till on Board, as *per* Advice—so much
And [Factor at — for Company Accompt between, *&c.* our Accompt Currant] Cr. By Wares received for the same Summ.———

Then

Then make [Wares receiv'd] Dr. To Cash for the Summ paid at the Receipt for Custome, *&c.*

And Cash Cr. By Wares received for the same Summ.

Then to place the Accompt between my Partner and Me.

Make [My Partner's Accompt by me in Company Dr. To his Accompt Currant for his Share, as *per* Invoice of the Return.

And [my Partner's Accompt Currant] Cr. By his Accompt by me in Company for the same Summ.

Case 13. When I receive Advice That my Factor has shipp'd off, and Consigned Wares to our Factor in another Country, for Company Accompt.

Rule. Make [Voyage to —— Consigned to our Factor for Company Accompt between my Partner and Me] Dr. To Factor at —— (*Viz.* my Factor that shipp'd the Goods) my Accompt Currant for their Value and Charges, as *per* Advice of my Factor.

And my Factor (that shipp'd the Goods) at —— my Accompt Currant Cr. By Voyage to —— (*Viz* the place our Factor resideth at) Consigned to our Factor in Company between my Partner and Me, for the same Summ.

Then make [my Partner's Accompt Currant] Dr. To his Accompt by me in Company, for his Share of the Value and Charges. And

[My Partner's Accompt by me in Company] Cr. By his Accompt Currant for the same Summ ——

Case 14. When Wares are returned by our Factor, to my Factor in another Country, for Wares sold for Company Accompt by our said Factor.

Rule. [Voyage to such a place Consigned to my Factor] Dr. To (our) Factor at —— for Accompt of Company between my Partner and Me, our Accompt Currant, for the Value of the Goods shipp'd. And

(our) [Factor at —— for Accompt of Company, between my Partner and Me our Accompt Currant] Cr. By Voyage (to such a place) Consigned to [my] Factor for the said Value and Charges.

Then make [my Partner's Accompt by me in Company] Dr. To his Accompt Currant for his Proportion, as *per* Advice received of the Accompt.

His

His Accompt Currant Cr. By his Accompt by me in Company, for the ſame Summ.

Caſe 15. When my Partner draws a Bill upon me payable at ſight.

Rule. Make [Partner (naming his Name) his Accompt Currant Dr. To Caſh for the Content of the Bill paid. And Caſh Cr. By [my Partner's Accompt Currant] for the ſame Summ.

Caſe 16. When you cloſe an Accompt in Company, obſerve this

Rule. Make [Wares (*&c.*) in Company between my Partner (naming his Share of the Stock, and ſo much me) Dr. To ſundry Accompts, for cloſing the Accompt, *viz.*

[To Profit and Loſs] for my Share of the Gain by Trading.

[To *Ditto*] for my Proviſion (or Employment) at ſo much *per Cent.* as by Agreement. And

[Profit and Loſs] Cr. By the Summ, your Proviſion and Share of the Gain amounts to.

Then Wares, *&c.* in Company (as before) Dr. To my Partner's Accompt Currant for his Share of the Gain. And [His Accompt Currant Cr.] By Wares in Company, *&c.* for the ſame Summ.

Company Accompts are generally eſteemed very difficult: But if a Perſon has a good Underſtanding in proper Accompts, and Factorage, he will find this very eaſie, there being little Difference more than this

1. In the Title of an Accompt in Company, To take in his Partner's Name in Company, mentioning his, and your Shares of the Stock, *&c.*

2. After any thing is bought, ſold, ſhipp'd off, receiv'd, *&c.* and Booked as in a proper or Factorage Accompt (having reſpect to the Title of Company Accompt as aforeſaid) you muſt take Care to make your Partner or Partner's Accompt Currant Dr. To or Cr. By his Accompt by you in Company, which you will eaſily know how to do by the 16 Caſes foregoing.

§ 6. *The*

§ 6. *The Method of keeping the Waste-Book, Journall, and Ledger.*

THE Waste-Book of me *C. D.* of *London*, Merchant: Containing all my Dealings from the First day of *July* 1694.

In the Name of God. Amen.

An Inventory taken *July* the first, Containing all my Estate in Cash, Wares, and Debts, which I have at this Day: And also what Debts are owing by me to others, *&c.*

			li.	s.	d.
My whole Estate this day in Money, Wares and Debts is ——— 3159 *li.* 10 *s.*					
(*Viz.*)		*li. s. d.*			
Imprimis. I have in ready Cash ———		1540:00:00			
Item. I have Drugs, *viz.*	*li. s. d.*				
340 *l.* of Scammony at 10 *s. per l.*	170.00:0				
565 *l.* Opium at 6 *s. per l.* ———	169:10:0				
105 C. Gallingale at 40 *s. per C.* —	210:00:0				
———		549:10:00			
Item. I have Raw Silk, *viz.*					
440 *l.* of *Tripoly* Belladine at 16 *s. per li.* ———	352:0:0				
650 *l.* Legee of *Smirna* at 12 *s. per* ℔ ———	390:0:0				
———		742:00:00			
Item. I have at *Aleppo*, consigned to *Gilbert Gainwell* my Factor there, these *Norwich* Wares remaining unsold, *viz.*					
18 Serge Denims that cost 6 *l.* each,	108::0::0				
30 Grograms at 3 *l. per* piece ———	90::0::0				
40 Barateens at 3 *l.* 5 *s.* each —	130::0::0				
88 pieces in all, which cost ———		328:00:00			
———			3173	04	00
Item. I am Indebted to several persons, *viz.*					
To *William Richardson* due the 3*d.* instant,		150:00:00			
To *Richard Nicholson* to Ballance his Accompt in my old Ledger ———		80:00:00			
To *Charles Rolling* due the 16*th* instant, —		140:00:00			
———			170		

	li.	s.	d.
July 2. 1694.			
Sold *George Higgs* 300 *l.* of Scammony for ready Money at 20 *s.* 6 *d. per* ℔	307	10	00
3. *Ditto.*			
Paid *William Richardson* in full	150		
4. *Ditto.*			
Bought of *Richard Nicholson* the *Norwich* Wares following, *viz.* li. s. d.			
10 Grograms at 3 *l. per* Piece — 30:00:00			
24 Barateens at 3 *l.* 6 *s. per* Piece — 79:04:00			
34 Pieces in all, amounting to	109	04	00
Of which I have paid 80 *l.* ready Money, And the rest which is 29 *l.* 4 *s.* to be paid in 8 days.			
5. *Ditto.*			
Received Advice from *Gilbert Gainwell*, my Factor at *Aleppo*, that he hath sold to sundry persons for my Accompt 60 Pieces of *Norwich* Wares, the Nett proceed of which, as by the particulars in his Accompt on the File is 1500 Dollars, the Exchange at 4 *s.* 6 *d. per* Dollar, makes Sterling	337	10	00
Lent *George Higgs* the Summ of 500 *l.* for 3 Months, for which he is to pay me Interest at the rate of 8 *l. per Cent. per Annum.*			
So that the Money lent is	500		
And the Interest thereof comes to	10		
July 9. 1694.			
Sold *William Short* the following Druggs, *viz.* li. s. d.			
40 *l.* of Scammony at 21 *s. per l.* — 42:00:00			
350 *l.* of Opium at 12 *s. per l.* — 210:00:00			
390 *l.* in all, for — of which I have received 160 *l.* and the rest, which is 92 *l.* to be paid in 3 months.	252		

(*The Method of the Entries in the Waste-Book.*)

	li.	s.	d.
10. *Ditto.*			
Received from my Factor *Gilbert Gainwell* at *Aleppo* by my Order and on my Accompt 8 Chests of Myrrh, containing 30 C. Nett, which at 22 Dollars *per C.* comes to 660 Dollars, the Exchange at 4 *s.* 6 *d.* *per* Dollar makes Sterling	148	10	00
Richard Nicholson hath assigned the 80 *l.* due to him from me, for the Balance of his Account in my old Ledger to *James Silver*, which I have paid to *Ditto Silver* on demand.	80	00	00
12. *Ditto.*			
Gilbert Gainwell Factor at *Aleppo*, hath remitted to me 600 Dollars, payable here at Treble Usance, by *Matthew Clessold*, for the value deliver'd there to *Mahoat Janezwar* the first of *April* last, the Exchange at 4 *s.* 8 *d.* *per* Dollar, makes Sterling Which Bill is accepted.	140	00	00
Paid *Richard Nicholson* in full	29	04	00
13. *Ditto.*			
Sold Alderman *Ryley* Mercer, the following *Norwich* Wares, *viz.* — *li. s. d.* 10 Grograms at 3 *l.* 10 *s.* *per* Piece — 35:00:00 24 Barateens at 4 *l.* 4 *s.* *per* Piece — 100:16:00	135	16	00
For which he hath given me an Assignment on *Peter Paygood*, to be paid me in 8 days, which I have accepted.			
Sold *William Short* the following Raw Silk for ready Money, *viz.* — *li. s. d.* 350 *l.* of *Tripoly*-Belladine at 30 *s.* *per* ℔ — 525:00:00 650 *l.* *Legee* at 25 *s.* *per* ℔ — 812:10:00	1337	10	—

(*The Entry of the Inventory in the Journal.*)

THE JOURNAL of me *C. D.* of *London*, Merchant: Containing all my Dealings from the First day of *July* 1694.

In the Name of God. Amen.

An Inventory taken the first of *July*, 1694. of my present Estate, in Money, Wares, and Debts, this day owing to me, and what Debts are owing by me, *&c.*

				li.	s.	d
Sundry Accompts are Debtor to Stock in the Summ of 3159 *l.* 10 *s.* for so much Cash, Wares and Debts, owing to me this day, *viz.*			li. s. d.			
Cash for so much in Chest			1540:00:00			
Drugs, *viz.*	li.	s. d.				
340 *l.* of Scammony at 10 *s. per l.*	170:00:0					
565 *l.* Opium at 6 *s. per l.*	169:10:0					
105 C. Gallingale at 40 *s. per C.*	210:00:0					
			549:10:00			
Raw Silk for 1090 ℔, *viz.*						
440 *l.* of *Tripoly*-Belladine at 16 *s. per li.*	352:0:0					
650 *l.* Legee of *Smirna* at 12 *s. per* ℔	390:0:0					
			742:00:00			
Voyage to *Aleppo*, consigned to *Gilbert Gainwell* my Factor there, for *Norwich* Wares remaining unsold, *viz.*						
18 Serge Denims that cost 6 *l.* each,	108:0:0					
30 Grograms at 3 *l. per* piece	90:0:0					
40 Barateens at 3 *l.* 5 *s.* each	130:0:0					
in all 88 pieces, which amounts to			328:00:00			
				3159	10	—
Stock is Debtor To Sundry Accompts 370 *l.* Due to Sundry Persons. *viz.*						
To *William Richardson* due the 3*d* instant,			150:00:00			
To *Richard Nicholson* for the Foot of his old Accompt			80:00:00			
To *Charles Rolling* due the 16*th* instant,			140:00:00			
				370		

The End of the Inventory.

(*The Method of Journal Entries.*)

	l.	s.	d.
July 2. 1694.			
Cash Debter To Druggs for 300 *l.* of Scammony sold *George Higgs* for ready Money at 20 *s.* 6 *d.* *per l.* ——	307	00	00
Ditto 3.			
William Richardson Debtor to Cash paid him in full —	150	00	00
Ditto 4.			
Norwich Wares Debter To sundry accompts 109 *l.* 4 *s.* for 34 Pieces bought of *Richard Nicholson*, viz.			
li. s. d.			
10 Grograms at 3 *l.* *per* Piece —— 30:00:00			
24 Barateens at 3 *l.* 6 *s.* each —— 79:04:00			
	109	04	00
To Cash paid *Ditto Nicholson* in part —— 80:00:00			
To *Ditto Nicholson*, to pay him the 12*th* Instant-29:04:00			
Ditto 5.			
Gil. Gainwell at *Aleppo* my Accompt Currant, Debtor to Voyage to *Aleppo*, consign'd to *Ditto Gainwell* the Summ of 337 *l.* 10 *s.* for the Nett proceed of Wares sold, as *per* his Accompt for 1500 Dollars, the exchange at 4 *s.* 6 *d.* Sterling *per* Dollar, makes English Coin-—	337	10	00
George Higgs Debter to sundry Accompts the summ of 510 *l.* for 500 *l.* lent him at Interest for 3 Months, at 8 *per cent. per ann.* viz.			
li. s. d.			
To Cash for the Principal lent-—— 500:00:00			
To Profit and Loss for the Interest —— -10:00:00			
	510	00	00
Ditto 9.			
Sundry Accompts Debtor to Druggs the Summ of 252 *l.* for 390 ℔ sold *William Short* as followeth, *li. s. d.*			
40 ℔ of Scammony at 21 *s.* *per* ℔ —— 42:00:00			
350 of Opium at 12 *s.* *per* ℔ —— 210:00:00			
(*viz.*)			
	252	00	00
Cash for 160 *l.* receiv'd, in part of *Ditto Short*, and *Ditto Short* Debtor for 92 *l.* he is to pay me in 3 Months.			

(*The Method of Journal Entries.*)

	l.	*s.*	*d.*
July 10. 1694.			
Druggs Debtor to *Gilbert Gainwell* at *Aleppo* my Accompt Currant, 148 *l.* 10 *s.* 00 *d.* for 8 Chests of Myrrh, poize Nett 30 *C.* at 22 Dollars *per C.* makes 660 Dollars, the exchange at 4 *s.* 6 *d. per* Dollar is Sterling —	148	10	00
Richard Nicholson Debtor to Cash the Summ of 80 *l.* being the Balance of an Accompt due to him, which I have paid *James Silver* by Assignation of *Ditto Nicholson.*	80	00	00
12. *Ditto.*			
Matthew Clessold Dr. to *Gilbert Gainwell* at *Aleppo* my Accompt Currant 140 *l.* by Bill remitted to me by *Ditto Gainwell* payable at Treble Usance for the Value delivered there, to *Mahoat Janezwar* —	140	00	00
Richard Nicholson Debtor to Cash paid him in full —	29	04	00
13. *Ditto.*			
Peter Paygood Debtor to *Norwich* Wares the Summ of 135 *l.* 16 *s.* for 34 pieces sold Alderman *Ryley, viz.*			
l. s. d.			
10 Grograms at 3 *l.* 10 *s. per* piece — 35 00:00			
24 Barateens at 4 *l.* 4 *s. per* piece — 100:16:00			
	135	16	00
For which Summ *Ditto Paygood* hath given me his Bill to pay in 8 days by Assignation of *Ditto Ryley* —			
Cash Debtor to Raw Silk 1337 *l.* 10 *s.* for 1000 pounds, sold to *Simon Strutt* for Ready Money, *viz.*			
l. s. d.			
350 ℔ of *Tripoly* Belladine at 30 *s. per* ℔ — 525:00:00			
650 Legee at 25 *s. per* ℔ — 812:10.00			
	1337	10	00

THE

THE
LEDGER.

London, Anno Domini, 1694.

			l.	*s.*	*d.*
1694		*Stock Debter.*			
July	1	To ſundry Accompts as *per* Inventory	370	—	—
		To Balance	3927	14	6
			4297	14	6
1694		*Caſh Debtor.*			
July	1	To Stock	1540	—	—
	2	To Druggs in part, of *George Higgs*	307	—	—
	9	To *Ditto*, receiv'd of *W. Short* in part	160	—	—
	13	To Raw Silk for 1000 ℔	1337	10	—
			3344	10	—
		Norwich Wares Debtor.			
July	4	To ſundry Accompts for 34 Pieces	109	04	—
		To Profit and Loſs gained by this Accompt	26	12	—
			135	16	—
1694		*Voyage to Aleppo conſigned to Gilb. Gainwell Dr.*			
July	1	To Stock for Wares unſold	328		—
		To Profit and Loſs gain'd by this Accompt	150	2	6
			478	2	6
1694		*Gilb. Gainwell at Aleppo my Accompt Cur. Dr.*			
July	5	To Voyage to *Aleppo* conſign'd to *Ditto Gainwell*	337	10	—
1694		*William Short Debtor.*			
July	9	To Druggs, due *October* the 9*th.* next	92	—	—

London, Anno Domini, 1694.

			l.	*s.*	*d.*
1694 *July*	1	*Per Contra Creditor.*			
		By ſundry Accompts as *per* Inventory	3159	10	—
		By Profit and Loſs gain'd by 2 Weeks Trade	1138	4	6
			4297	14	6
1694 *July*	3	*Per Contra Creditor.* By *W. Richardſon*, in full	150	—	—
	4	By *Norwich* Wares, in part	80	—	—
	5	By *Geo. Higgs*, lent at Intereſt	500	—	—
	10	By *Richard Nicholſon* paid *James Silver*	80	—	—
	12	By *Ditto Nicholſon*, in full	29	4	—
		By Balance, remains in Caſh	2505	6	—
			3344	10	—
1694 *July*	13	*Per Contra Creditor.* By *Peter Paygood*, for 34 Pieces	135	16	—
1694 *July*	5	*Per Contra Creditor.* By *Gilb. Gainwell* at *Aleppo* my Accompt Cur.	337	10	—
		By Balance for Wares unſold	140	12	6
			478	2	6
1694 *July*	10	*Per Contra Creditor.* By Druggs for 8 Cheſts	148	10	—
	12	By *Matthew Cleſſold*	140	—	—
		By Balance due to me	49	—	—
			337	10	—
		Per Contra Creditor. By Balance	92	—	—

London, Anno Domini, 1694.

			li.	s.	d.
1694		*Druggs Debtor.*			
July	1	To Stock	549	10	–
	10	To *Gilb. Gainwell* at *Aleppo*, my Accompt Cur.	148	10	–
		To Profit and Loſs, gain'd by this Accompt	284	–	–
			982	–	
1694		*Richard Nicholſon Debtor.*			
July	10	To Caſh paid *James Silver*, by Aſſignation	80	–	–
	12	To Caſh paid *Ditto Nicholſon* in full	29	4	–
			109	4	–
1694		*Matthew Cleſſold Debtor.*			
July	12	To *Gilb. Gainwell at Aleppo*, my Accompt Cur.	140	–	–
1694		*Peter Paygood Debtor.*			
July	13	To *Norwich* Wares	135	16	–
1694		*George Higgs Debtor.*			
July	5	To ſundry Accompts for Principal and Intereſt	510	–	–
		Profit and Loſs Debtor.			
		To Stock gain'd by 12 Days Trade	1138	4	6
		Charles Rolling Debtor.			
July	1	To Balance due to him	140	–	–

London, Anno Domini, 1694.

			li.	s.	d.
1694		*Per Contra Creditor.*			
July	2	By Cash for 300 ℔ of Scammony	307	—	
	9	By sundry Accompts-	252	—	—
		By Ballance rests unsold, *viz.* 215 ℔ of Opium at 6 *s.* 105 C. of Gallingale at 40 *s.* and 30 C. of Myrrh, at 4 *l.* 19 *s. per* C. which cost	423	—	—
			982		—
1694		*Per Contra Creditor.*			
July	1	By Stock	80	—	—
	4	By *Norwich* Wares	29	4	—
			109	4	—
		Per Contra Creditor.			
		By Ballance due to me	140	-	—
		Per Contra Creditor.			
		By Ballance due to me	135	16	—
		Per Contra Creditor.			
		By Ballance	510	—	—
1694		*Per Contra Creditor.*			
July	5	By *George Higgs* for Int. Money due *Oct.* 5. next	10	—	
		By *Norwich* Wares	26	12	—
		By Voyage to *Aleppo*	150	2	6
		By Druggs	284	—	—
		By Raw Silk	667	10	—
			1138	4	6
1694		*Per Contra Creditor.*			
July	1	By Stock	140	—	

London, Anno Domini, 1694.

			l.	*s.*	*d.*
1694		*William Richardson Debtor.*			
July	3	To Cash paid him in full	150	—	—
1694		*Raw Silk Debtor.*			
July	1	To Stock	742	—	—
		To Profit and Loss gained by this Accompt	667	10	—
			1409	10	
		Ballance Debtor.			
		To Cash rest in Chest	2505	6	—
		To Voyage to *Aleppo* consign'd to *G. Gainwell*	140	12	6
		To *G. Gainwell* my Accompt Currant	49	—	—
		To *William Short*	92	—	—
		To Druggs unsold, *viz.* 215 ℔ of Opium at 6 *s. per* ℔ 105 *C.* of Gallingale at 40 *s.* and 30 *C.* of Myrrh at 4 *l.* 19 *s. per C.* which in all cost	423	—	—
		To *Matthew Clessold*	140	—	—
		To *Peter Paygood* by Assignation	135	16	—
		To *George Higgs*	510	—	—
		To Raw Silk, *viz* 90 ℔ of *Tripoly*-Belladine remaining unsold, which cost	72	—	—
			4067	14	6

London, Anno Domini, 1694.

				l.	*s.*	*d.*
			Per Contra Creditor.			
			By Stock	150	--	--
			Per Contra Creditor.			
1694 *July*	13		By Cash	1337	10	--
			By Ballance rests unsold 90 ℔ of *Tripoly* Belladine at 16 *s. per* ℔	72	--	--
				1409	10	--
			Per Contra Creditor.			
			By *Charles Rolling* due to him	140	--	--
			By Stock	3927	14	6
				4067	14	6

Note, *That the Transcript of the Debter-side of the foregoing Balance will be an Inventory of what you are worth in Cash, Wares, and Debts; and that of the Creditor-side (leaving out Stock) will be what you owe, and must when you begin new Books (or a new Accompt) be entred as an Inventory, as followeth.*

An Inventory of me *C. D.* of *London*, Merchant, containing my whole Estate this fourteenth Day of *July* 1694. In Cash, Wares and Debts: And also what Debts are owing by me to others, *&c.*

(*Viz.*)	*l.*	*s.*	*d.*
Imprimis. I have in ready Cash	2505	06	00
Item. I have at *Aleppo*, consigned to *G. Gainwell* my Factor there, *Norwich* Wares unsold, which cost	140	12	06
Item. *Ditto Gainwell* oweth me for *Norwich* Wares sold by him, and their Value not returned to me	49	00	00
Item. *William Short* oweth me for Drugs, due *Octob.* 9. next	92	00	00
Item. I have Drugs by me, unsold, *viz.*			
215 ℔ of Opium at 6*s. per* ℔. 64 : 10 : 0			
105 *C.* of Gallingale at 40*s. per* Hundred cost 210 : 00 : 0			
30 *C.* of Myrrh which cost 4*l.* 19*s. per* Hundred 148 : 10 : 0			
	423	00	00
Item. *Matthew Clessold* oweth me upon Bill due the first of *September*	140	00	00
Item. *Peter Paygood* oweth me by Assignation of Alderman *Ryley* for *Norwich* Wares	135	16	00
Carry'd over	3485	14	06

	l.	*s.*	*d.*	*li.*	*s.*	*d.*
Brought over	3485	14	06			
Item. *George Higgs* oweth me upon Bond	510	00	00			
Item. I have Raw Silk unsold, *viz.* 90 *l.* of Tripoly-Belladine, which at 16 *s. per* ℔ cost	72	00	00			
				4067	14	06
Item. I am indebted as followeth, (*Viz.*) To *Charles Rollings* due the 16*th.* Instant				140	00	00

To your Ledger you ought to have an Index or Alphabet thus:

C.

Cash — *Fol.* 1
Clessold Matthew — *Fol.* 2

D.

Drugs — *Fol.* 2

G.

Gainwell Gil. my Accompt Currant — *Fol.* 1

H.

Higgs George — *Fol.* 2.

N.

Norwich Wares — *Fol.* 1
Nicholson Richard — *Fol.* 2

P.

Paygood Peter — *Fol.* 2
Profit and Loss — 2

R.

Rolling Charles — *Fol.* 2
Richardson Will. — 3
Raw Silk — 3

S.

Stock — *Fol.* 1
Short Wm. — 1

U.

Voyage to *Aleppo*, consigned to *Gil. Gainwell* — 2

This

This Alphabet referreth to the foregoing Ledger, and is always to be affixed to the Beginning thereof, that so any Accompt whether of Men, Wares, Cash, Voyages, or any thing the Merchant dealeth in may be found with Ease. And the Sir-names are always put first, because there are not so many of one Sir-name, as of one Christened, and consequently are the easier found by the Sir-name.

Note, That if you had kept a Ca-shbook for the Accompt of Cash foregoing, The three lines on the Debtor-side, and the five on the Creditor-side, would have been contained in two lines: Thus.

Cash Debtor.

	l.	*s.*	*d.*
To sundry Accompts, *Fol.* 2, 1, 3.———————	1804:	10:	00

on which 2*d.* 1*st.* and 3*d.* *Folio*'s stand the Accompts of *Geo. Higgs*, *W. Short*, and *Raw. Silk*: and on the Creditor-side thus.

Cash Creditor.

	l.	*s.*	*d.*
By sundry Accompts, *Fol.* 3, 1, 2, 2, 2———————	839:	04:	00

on which Pages stand the Accompts of *W. Richardson*, *Norwich* Wares, *Geo. Higgs*, and *Richard Nicholson*, and thus may you bring to Accompt all the Cash received and paid in a Month, *&c.* or any other Accompts may referr to the *Folio* that it is Debtor to, or Creditor by.

§ 7. *Directions for Posting.*

When you would Post any Accompts (which is the Entring any thing in its proper place in the Ledger,) as for instance, in the *Norwich* Wares bought of *Richard Nicholson* the 4*th* of *July*, By the 16. Case of the 2*d.* Section of this Chapter, the Wares are made Debtor to Cash for the Summ paid in part, and To *R. Nicholson* for what resteth due to him. So that (if the Accompt of *Norwich* Wares was not before entred in the Ledger;) I turn to (*N*) in the Alphabet or Index; and because I find the 2*d.* *Folio* a proper place (there being room) to enter the same: I write in the said Alphabet [*Norwich* Wares *Fol.* 2] Then on that *Folio* on the Left-hand Page, I write [*Norwich* Wares Debtor] in a fair *Italian* or Sett *Roman* hand, To sundry Accompts *Fol.* 1, 2, for the whole Value of the Wares—109 *l.* 4*s.* i.e. To Cash on *Fol.* 1, for 80 *l.* paid in Ready-money, for which Summ you must likewise turn

to

to the Accompt of Cash, and make [Cash Creditor] thereby; and to *R. Nicholson*, on *Fol.* 2. for the 29 *l.* 4 *s.* due to him, for which Summ he must have Credit given him: Therefore turn to *R. Nicholson*'s Accompt by the Alphabet as before, or if the same is not entred, you may do it in the Alphabet, and in some convenient place of the Ledger, as is taught of the *Norwich* Wares, making [*Richard Nicholson* Creditor] By *Norwich* Wares 29 *l.* 4 *s.* referring if you please to *Fol.* 1. where *Norwich* Wares stand: But if you think referring to the *Folio*'s from one Accompt to another is too difficult, you may omit it, making Cash Debtor in the Ledger To, and Cr. By sundry Accompts as *per* Cash Book, and you may easily referr from one Accompt to another by the Day of the Month, *&c.* as if *Norwich* Wares the 4*th.* of *July* is Debtor To *Richard Nicholson*, *Richard Nicholson* the same Day of the Month will stand Creditor, By *Norwich* Wares, and the contrary, and by the Day of the Month you may likewise find any Accompt in the Waste-book, Journal, *&c.* for the particulars of any Accompt in the Ledger, which is there but Entered in short.

§ 8. *Directions for Closing an Accompt.*

The Closing an Accompt is always in Order to the Balance of it, and is done either by Profit and Loss, or Balance, being thus performed. I shall instance in two of the Examples foregoing, by which you will easily have a right Notion of Closing an Accompt.

EXAMPLE 1.

In the Accompt of Cash foregoing when I come to Close, Even, or End the Accompt, in Order to Balance I find (by summing up the Debtor and Creditor Sides) that I have received more Cash than I have paid by 2505 *l.* 06 *s.* therefore I close the Accompt of Cash, by making Cash Creditor by Balance for 2505 *l.* 06 *s.* remaining in Chest.

EXAMPLE 2.

In the Accompt of *Norwich* Wares: I find the Debtor-side to be 109 *l.* 04 *s.* and the Creditor-side 135 *l.* 16 *s.* i. e. That I have sold the Goods for more than they cost me by 26 *l.* 12 *s.* which is my Gain, Therefore Profit and Loss must be made Creditor by *Norwich* Wares 26 *l.* 12 *s.* and consequently *Norwich* Wares must be made

Debtor

Debtor to Profit and Loſs 26 *l.* 12 *s.* which cloſes the Accompt. But if the Exceſs had been on the other Side, that is to ſay, That I had not ſold the Goods for ſo much as I gave for them: Then Profit and Loſs will be Debtor to *Norwich* Wares, and *Norwich* Wares Creditor by Profit and Loſs, ſo much as Loſt by the Accompt: So that all Accompts of Wares are cloſed by Profit and Loſs provided the Wares are all ſold; but if they are not the Accompt of Wares muſt be always made Creditor by Balance for the Wares, remaining unſold, and then cloſed by the Accompt of Profit and Loſs, as the Accompt of Druggs foregoing. Note, that in an Accompt of Men: If the Creditor-ſide exceed the Debter: Then am I indebted to that Man, and the Accompt muſt be cloſed by making him Debtor to Balance for ſo much as is due to him, which is ſo much as the Creditor ſide exceeds the Debtor.

§ 9. *Directions for Balancing your Accompts.*

In cloſing an Accompt you Balance that particular Accompt, but when you would Ballance all your Accompts to ſee what you are worth, or what you have, and what you owe, do thus: Having cloſed your particular Accompts, except Stock, and Profit and Loſs; Take a clean Sheet of Paper, and on the Left-hand Folio make [Balance Debtor] and on the other Side [*per contra Creditor*] Then begin at the Beginning with Caſh, as in the foregoing Balance, making Balance Debtor to Caſh for ſo much remaining in Cheſt.

2*dly.* I come to the *Norwich* Wares, and find the Accompt cloſed by the foregoing Rule, with Debtor to Profit and Loſs: Therefore I enter on the Creditor-ſide of that Accompt [Profit sand Loſs Creditor by *Norwich* Wares 26 *l.* 12 *s.*

3*dly.* In the Voyage to *Aleppo*, I enter Baiance Debtor to Voyage To *Aleppo* for the Goods unſold at *Aleppo*, or in any Accompt of Wares, the Balance muſt be always made Debtor to the Wares unſold.

4*thly.* In the Accompt of *G. Gainwell* my Accompt Currant. Becauſe I find my Factor has not returned the Money for Wares that he has ſold for my Accompt by 49 *l.* I make Balance Dr. To *G. Gainwell* my Accompt Currant for that Summ. And in ſhort, Balance is made Debtor to all Accompts for the Summ that ſuch Accompt is made Creditor by Balance; and Balance is made Creditor by all Accompts for the Summ that ſuch Account is made Debtor to Balance: And Profit and Loſs is made Debtor and Creditor in like Manner;

Manner; To and by the Accompts closed with Profit and Loss. And having closed these Accompts, and entered the same in the Accompt of Balance, as taught before: Close the Accompt of Profit and Loss, by making the same Dr. To Stock, for so much as the Creditor side exceeds the Debtor, and the Contrary, which Contrary seldom happeneth, for few that are carefull in their Business, Trade, and gain nothing. Then carry the Foot of the Accompt of Profit and Loss (if Gain) To the Creditor-side of Stock, if Loss, to the Debtor-side. Then close the Accompt of Stock, as before taught for other Accompts, and make Balance Dr. To or Cr. By the Excess of the Dr. or Cr. Side of Stock, as taught above, and in the Example foregoing of Stock, and Balance; and last of all, summ up the Dr. and Cr. Sides of Balance, and if the Summs are equal, your Books ave been rightly kept, otherwise not.

Note, That in the Accompt of Stock, the Summ you owed when you begun Trade, and your present Stock, will always Balance your former Stock, and what you have gain'd by Trading, if your Accompts have been well kept.

CHAP. XI.

Maxims and Rules to be observed in Drawing and Accepting Bills of Exchange, Foreign, and Domestick.

1. Bills are either Foreign or Domestick.

2. Foreign Bills are usually payable in *London*, and other parts of *England*, at Single, Double, or Treble Usance.

3. Domestick Bills are usually payable, either at Sight, or some Number of Days after.

4. A Foreign Bill payable at Usance here in *London*, is payable a Month and three Days (according to the Custome of *London*) after the Date of the Bill, allowing for the 10 Days of the Month, which Foreigners usually reckon before us; as if a Bill at *Amsterdam*, *Rotterdam*, &c. is drawn upon any Person in *London*, payable to me at Double Usance, which Bill is dated the 12*th*. of *August* 1694. This Bill is payably to me two Months and three Days after the Date of the Bill: *i. e.* The Bill being dated *August* the 12*th*. one Usance (or

Month) after is *September* the 12*th*. and two Usance is *October* the 12*th*. from which deducting 10 Days (which they reckon before us in new Stile) and the Remainer is the 2*d*. of *October*, to which add three Days (allowed according to the Custome of *London*, over and above the Usance) and the Summ is *October* the 5*th*. before the Sun going down of which Day the Bill is to be paid. And,

5. If a Foreign Bill is not paid when due, it must be protested in the Office of a Publick Notary, who protesteth against the Drawer, he on whom it is drawn, *&c.* for all Charges, Re-charges, and Interest to be paid by them.

6 After the Bill is Protested, the Protest and Bill is Registered, and then the Protest is return'd; but 'tis usual in kindness to him on whom it is drawn, to keep the Bill 3 or 4 Days longer.

7. If the Bill is not yet paid, it is usual to go upon the Exchange to see if any Body will pay the said Bill, for the Honour of the Drawer.

8. If any one is found that will pay it, he must likewise pay you the Charge of the Protest (which is about 2 *s*. 6 *d*.) and also the Interest, and other Charges, which he afterwards Charges on the Drawer.

9. But if no one be found that will pay it, then the Bill must be returned with the Charges, Interest, *&c.* to the Drawer.

10. The Allowance for Payment over and above Usance, is different, according to the Country. As

		Days.	
At	*London*	3	Is allowed after the Single, Double, *&c.* Usance.
	Roterdam	6	
	Roan	5	
	Paris	10	
	Hamburgh	12	
	Antwerp	14	

11. Though Usance generally signifieth a Month in Bills drawn To and from *London*, yet from *Venice* to *London* Single Usance is three Months.

12. When you have Money to receive from a Foreign Correspondent, you are to make your Case known to an Exchange-Broker, who will procure Persons that will pay you your Money here ; you giving them your Bill for the like Summ payable to their Order by your

your Correſpondent, and in this Caſe you are to enquire how the Exchange goes to ſuch a place where the Money is payable, and make your Bargain as to the Exchange as well as you can; which having done, draw your Bill, mentioning the Sterling Coin, at ſo much Foreign Coin, for ſo much Sterling, as by the Tables of Exchange in Chap. 9.

13. A Domeſtick Bill that is payable at ſight, is not payable till three Days after the Perſon on whom it is drawn, ſeeth it.

14. If a Bill is accepted, the Accepter is become Debtor to him to whom the Bill is payable. And

15. If a Bill is accepted, and not paid in time, he to whom it is payable, may, by the Law of Merchants, ſeize the Goods of the Accepter.

16. When a Bill or Note for Money is made payable to another or Order; if the Perſon to whom it is payable goes not in Perſon to receive the Money, he muſt write his Order on the Back-ſide of the Bill or Note, thus:

I Order the Bearer A. B. *to receive the Content of this Note,* * *or Bill,*
And afterwards ſubſcribe your Name.

17. When any one draws a Bill payable to another, the Drawer ought at the ſame Oportunity, to give advice to him by whom it is payable, that he has drawn a Bill on him payable to ſuch a Perſon, at ſuch a time, for ſuch a Summ, for the avoiding all Suſpition of Deceit in counterfeiting the Drawer's Hand, *&c.*

18. When part of the Content of a Note, *&c.* is onely required to be paid, the Summ paid in part muſt be endorſed on the Back-ſide of that part moſt wrote on, as croſs the Middle, *&c.* that ſo the Endorſement cannot be cut off without defacing the Bill.

19. If you draw a Bill on any one that is indebted to you, and it be not paid in that time, which you think it might reaſonably be: you muſt draw a ſecond Bill on him, mentioning it in the Bill to be your ſecond, third, *&c.* Bill payable to ſuch a Perſon, *&c.*

The

The Form of an Inland Bill.

Norwich, July *the* 14*th*, 1694.

AT four Days sight pay Mr. *Henry Molyneux*, or his Order, Three hundred Pounds, for the Value received here of *Ralph Rich*, and place it to Accompt, as *per* Advice from

To Mr. *Tho. Telfast*
Merchant in *London*.

Your Humble Servant,
Matthew Mount.

If this Bill is not paid, draw a Second, thus.

Norwich, July *the* 14*th*, 1694.

AT four Days sight pay this my second Bill of Exchange, (my first not being paid) to Mr. *H. M*, &c.

A Foreign Bill.

London, July *the* 14*th*, 1694. *for* 601 *l.* 4 *s.* 3 *d. Sterling*, 2 *Usance* *at* 33 *s. Flemish*, *for* 20 *s. Sterling*.

AT Double Usance pay this my first Bill of Exchange unto *John Vandersteegen*, or his Order, Six hundred and one Pounds four Shillings, Three-pence Sterling, at Thirty three Shillings Flemish for one Pound Sterling, for the Value received here of *James Langrigue*, and pass it to Accompt, as *per* Advice from

To Mr. *Daniel Denderdorp*,
Merchant in *Antwerp*.

Your Friend and Servant,
Timothy Trustmore.

F I N I S.